# Nal'lachi Lagvodd

2022
Gen-> Dev
(Eng-script)
NEV

Nevil Alphonso

# Addsorachem Udok

Nisorgan toiar korun *pack* kel'lem – ek bholaikik pivonn

**Addsorachem udok....**

- Munxeak, nisorgachi ek vhodd bhett.
- Rasrashit zaunk ek ruchik ani bholaikik pivonn.
- 100% nisorgik shuddh.

**Addsorachea udkant....**

- Vitamin, Minerals & Protiens khub promannan mellta.
- Vokhdanche khub gunn asat.

## Tor nisorgan itlem borem pivonn dil'lem astana, tum her pivonnank kiteak bhul'lai.

**Addsorachem Udok Pie...... Bholaiki Samball....**
**Nal'l Utpadokank Adar Kor.**

# NAL'LACHI LAGVODD

**Nevil Alphonso**

Konkani Language & Cultural Foundation (R.) * Mangaluru
2022
Gen > Dev (Eng Script)
NEV

Nal'lachi Lagvodd
(*Coconut Cultivation –Konkani, Roman script*)

*Boroupi:* **Nevil Alphonso**

*Chhap'pi:* New Age Printers, Verna

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**Hem pustok Goa Konkani Akademi-chea Xikxonik ieuzonne khala 50% ortik palvan chhaplam.**

Panam: 88 + 6 rongit = 94

Prakaxok: Nevil Alphonso

Baga, Cotombi
Taluka - Quepem,
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# Mhoje Dhin'vas

**Goa Konkani Akademi-k...**
tannim hem pustok chappun haddunk duddvancho adhar dila.

**Pri. Ave Maria Afonso-k...**
tannem hea pustokachi borpavoll nittaier ghalea.

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**New Age Printers hankam...**
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**Nevil Alphonso**

# PROSTAVNA

Nal'lacho madd, sobitaiek ani vevharik upeogak, dusre khoinchei pikek fattim dovorta.

Nal'l Gõychi ek mhotvachi pik. Gel'lim 30-40 vorsam kel'lea sod ani vikas-a vorvim novea tontranchi vadd zalea. Dubava viret him tontram ienavoll vaddounk upeogak poddleant. Torui astana samanea xetkareanchea bhagayatichea ani sonvshodan kendranchea bhagayatichea utpadonant bhorpur ontor asa. Ani hi ontor bhorun gheunk xetkareamnim taboddtob panvlam ubarunk zai.

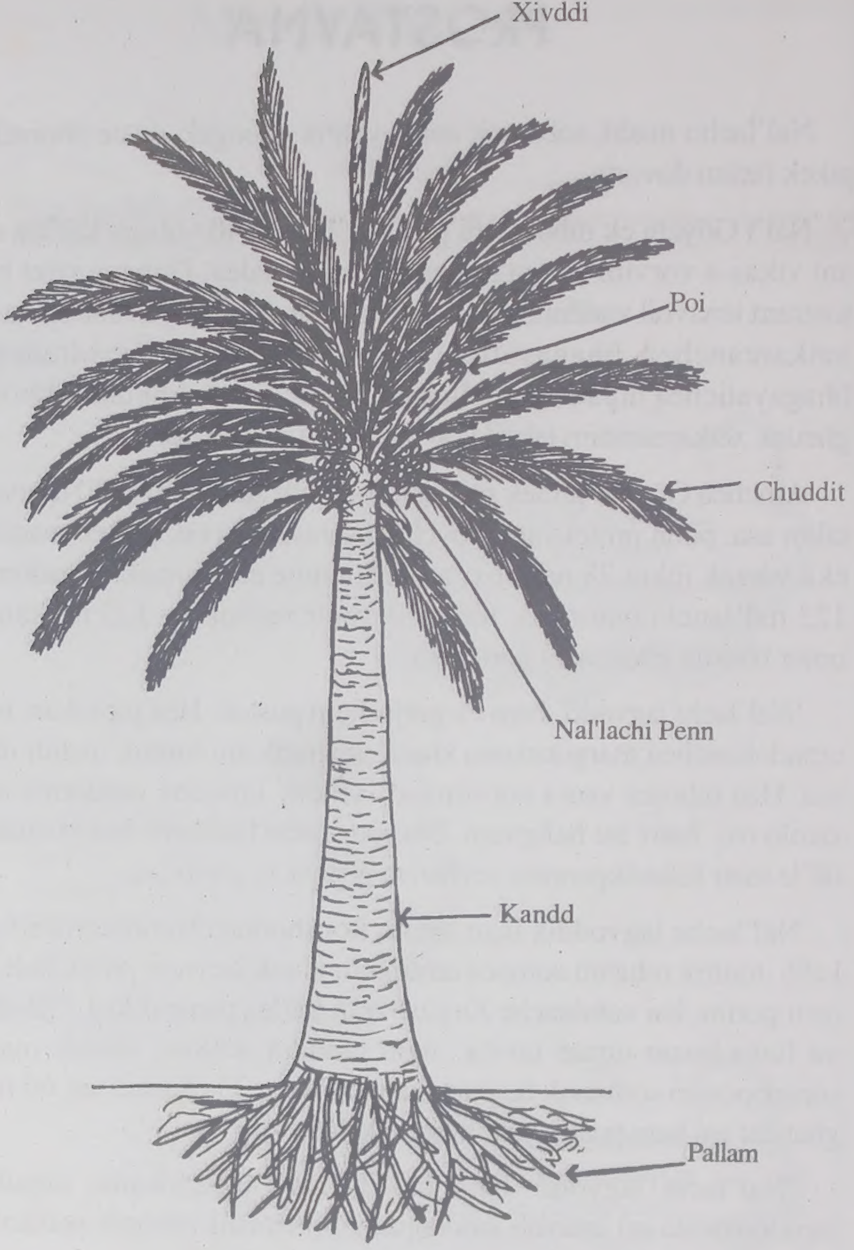
Amchea Gõyant protek maddak, Banavli zatik, 151 nal'l diupachi takot asa, punn protekxant Gõychem sarasari utpon, protek maddak, eka vorsak fokot 28 nal'l oxi asa. Mhonnje eka vorsak, utpadonant 123 nal'lanchi ontor asa. Ieog tem tontr vaprun ho 123 nal'lanchi ontor bhorun gheupachi goroz asa.

'Nal'lachi lagvodd' hem ek gorjechem pustok. Hea pustokant nal'l utpadokanchea margdorxona khatir vevharik ani tontrik mahiti dil'li asa. Hea mhojea vaura vorvim nal'lachem utpadon vaddounk adar zatolo oxi hanv ast ballgitam. Bhorpur faido kaddunk, hea pustokant dil'le tontr folladikponnim vevharant ghalpachi goroz asa.

Nal'lache lagvoddik lagu zatoli, Sonshodhan Kendranim sifarus kel'li tontrik mhahiti sompea utramnim diunk hanvem proitn kela ani tech porim, kai xobdanche *English* orth fattlea panar dileat. "Ek chitr va fotto hozar utram uloita" hem monant dovrun, tantrik mahiti sompeponim somzunk he pustokant hanvem 33 chitram ani 69 fotto ghatleat ani hem pustok odhik girest kelam.

'Nal'lachi lagvodd' hem pustok nal'l utpadokank, utpadon, utpadonxamta ani ienavoll vaddoupachea proitnank upeogak poddtolem mhonn mhaka khatri asa.

**Nevil Alphonso.**




*Chitr - 1 Maddachi Volok*

Nal'lachem xastrio nanv - "*Cocus Nucifera*"

# I

# Nal'lachem Mhotv

Mon'xachea jivitant nal`lacho veg-vegllo upeog zata.Soglleavon mhotvacho upeog mhollear kobrem ani kobrel (tel). Maddacho protek bhag mon'xachea upeogak poddta. Tea pasot maddak "Kalpavriksha", "Sorgachem zhadd" "Sogllem divpi zhadd" oslea khub nanvamnim vollkhotat. Nal'lak "Girestkaiechem foll" vo "Lakximi foll" oxem-i mhonnttat.

Nal'lachi katli va soi toxench sukhem kobrem veg-veglle jin'nos toiar korunk vapurtat.

Toxench nal'lachi pendd mon'zatink khann mhonn vapurtat.

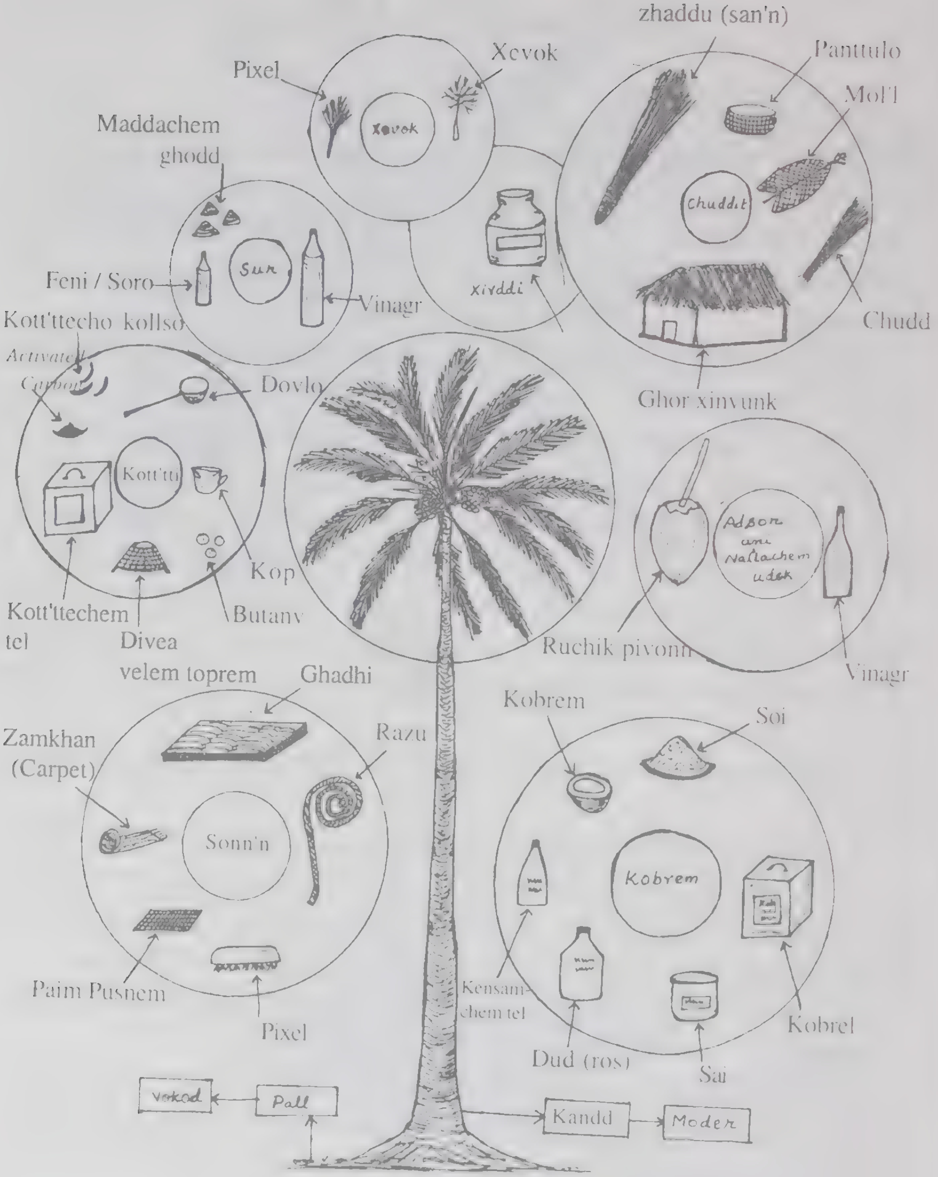
Son'nanchea katea pasun sumb, razu ani ier torekvar vostu kortat. Nal'lachem ani addsorachem udok ek ruchik pivonn zaun asam. Maddache vãxe kortat zalear chuddtanchim mol'lam kortat. Vãnxe,chuddtam ani mol'lam ghor xinvunk vapurtat. Viranchi san'n vo zhaddu kortat zalear chuddtam, poieo ani xevkam ujeak vapurtat. Tech porim sur hacher prokria korun soro (Feni) kaddtat ani vinagr ani godd toiar kortat.

Fuddlea panar dilolea chitrant *(Chitr-2)* maddache veg-veglle upeog dakhoileat .

Bharotache sonvskrutaient nal'l-ak khub mhotv asam. Hindu dhormant nal'lak povitr ani xubh oxem mandtat. Logn, ghorproves, munj, udghatton somaromb vo koslei Devkaria nal'l nastana purnn zaina. Kristi dhormantui nal'l, dhortorechem foll koxem Devak bhettoitat. Veg-veglleo vostu diunche diun nal'l amcheo somajik ani sonvskrutik gorzo bagoita.

**Orthik mhotv:** Dusrea bhagayati pikam poros nal'l madd ekmev zaun asa. Madd jevonn, pivonn ani asro divche diun, udheog dhondeant tacho khub upeog zata. Bharotachea kheddea ganvant nal'lachi pik, rozgar ani ienavoll toiar korta.

Amchea deshant 10 million odhik lok nal'lache lagvoddicher, prokriacher ani bazar dhondeacher ovlombun asa.




*Chitr - 2 Maddache veg-veglle upeog*

# II
# Xetrfal ani Utpadon.

**Jogant**

Jogant sumar 90 odhik raxttram nal'lachi lagvodd kortat. Nal'la khalla sumar 12.78 daslakx hectar zomin asa zantuntlean 54,802 daslakx nal'l utpon zatat ani utpadonxamta (dor hactarachem utpadon) 4287 nal'l asa. Nal'lachea utpadonant Bharat, Indonesia, Filipines ani Sri Lanka him chear raxttram mhotvache khellgoddi asat. Tanche modem Indonesia poilea zagear urta, Filipines dusrea zagear zalear, Bharat ani Sri Lanka 3rea ani 4thea zagear rauta.

*Toktto (1)*

| Kr.Ank | Raxttr | Xetrfal (hozar hectar) | Utpadon (daslakx nal'l) | Utapadonxamta (nal'l dor hectarak) |
|---|---|---|---|---|
| 01. | F.S.Micronesia | 17 | 40.00 | 2353 |
| 02. | Fiji | 54 | 150.00 | 2778 |
| 03. | Bharot | 1778 | 12252.00 | 6891 |
| 04. | Indonesia | 3684 | 15119.00 | 4104 |
| 05. | Malaysia | 226 | 572.00 | 2531 |
| 06. | Papua New Guinea | 260 | 1032.00 | 3969 |
| 07. | Fillipines | 4090 | 12499.00 | 3056 |
| 08. | Samoa | 96 | 190.00 | 1979 |
| 09. | Solomon Islands | 59 | 330.00 | 5593 |
| 10. | Sri Lanka | 442 | 3096.00 | 7005 |
| 11. | Thailand | 325 | 1098.00 | 3378 |
| 12. | Vanuata | 96 | 340.00 | 352 |
| 13. | Vietnam | 173 | 1032.00 | 5965 |
| 14. | Palau | 14 | 70.00 | 5000 |
| 15. | Dusrim raxttram | 1468 | 6982.24 | 4756 |
| | | **12782** | **54802.24** | **4287** |

*Sutr – APCC Statistical year book 2000*

**Bharotant**

Bharotant Kerala, Tamilnadu ani Andhra Pradesh rajeant chodd pormannem nal'lachi lagvodd kortat. Bharotachea nal'l xetrfalacho 50.89% vantto ani nal'l utpadonacho 43.63% vantto Keralant asa.

Utpadonxamtant Maharastra poili urta zalear Bengal ani Andhra Pradesh 2rea ani 3rea zagear urta. *(Polle sokol dil'lo toktto)*

*Toktto (2)*

| Kr. Ank | Rajeo | Xetrfal (Hozar hactar) | Utpadon (Daslakx nal'l) | Utpadonxamta (Dor hactarak narl) |
|---|---|---|---|---|
| 01. | Andhra Pradesh | 102.5 | 1092.7 | 10660 |
| 02. | Assam | 20.9 | 135.9 | 6502 |
| 03. | Goy | 25.0 | 125.1 | 5004 |
| 04. | Karnataka | 333.8 | 1754.2 | 5255 |
| 05. | Kerala | 936.3 | 5496.0 | 5870 |
| 06. | Maharastra | 16.8 | 244.4 | 14548 |
| 07. | Orissa | 17.7 | 109.9 | 6209 |
| 08. | Tamilnadu | 323.5 | 3158.4 | 9763 |
| 09. | Tripura | 9.1 | 7.0 | 769 |
| 10. | West Bengal | 24.5 | 330.5 | 13490 |
| 11. | Andaman & Nicobar Islands | 24.7 | 87.2 | 3530 |
| 12. | Lakshadeep | 2.8 | 28.0 | 10000 |
| 13. | Pondicherry | 2.2 | 28.0 | 12727 |
| 14. | Purai Bharotant | 1839.8 | 12597.3 | 6847 |

*Sutr:- Directorate of Economics & Statistics, Ministry of Agriculture, Govt of India (2000-01)*

**Gõyant** –

Gõyant 25,160 hectar zomnint nal`lachi lagvodd kortat ani vorsak 125.1 daslakx nal'l utpon zatat. Gõychi utpadonxamta 5004 nal'l asa (dor eka hactarak utpadon).

*Toktto (3)*

| Kr.Ank | Taluka | Xetrfal |
|---|---|---|
| 01. | Pernem | 1588 |
| 02. | Bicholim | 1495 |
| 03. | Sattari | 893 |
| 04. | Bardez | 2961 |

| | | |
|---|---|---|
| 05. | Ponda | 2443 |
| 06. | Tiswadi | 1703 |
| 07. | Salcete | 6058 |
| 08. | Quepem | 2114 |
| 09. | Sanguem | 2998 |
| 10. | Canacona | 1684 |
| 11. | Marmugao | 1223 |

*Sutr:- Xetki Khatem,Gõy Sorkar, Panaji, Gõy.(2004-05)*

2100

*Fotto - 1 — Benaulim nal'lachi Penn*

*Fotto - 2 — Nanora nal'lachi Penn*

*Fotto - 3 — Kalangut Nal'lachi Penn*

# III
# Zati

Nal'lak don torecheo zati asat, ek lamb ani dusri mottvi.

**Lamb Zati**:-

Lamb zati chodd promannan dista. Teo sorvsadharonn 15-18mts *(meters)* lamb astat ani tanchem ayush 80 – 100 vorsam odhikuch asta. 5-6 vorsamnim nal'l lagunk lagtat. Nal'l akaran mod'deom te motte astat ani tancho rong pachvo vo holduvo asta. Lamb zatichea nal'lant borea dorjechem kobrem asta ani telachem promann 67% asta.

Dekhik – Benaulim, Nanora, Kalangut, West coast Tall, East coast Tall, Lakshadeep ordinary, Andaman ordinary, Phillipines ordinary, adi.

Goyant Benaulim (Banavle), Nanora ani Kalangut heo zati chodd promanan roitat.

**Benaulim/Banavle:-**

*Fotto -4 — Benaulim*

Saxtti talukent axil'lea Benaulim/Banavle gaunchem nanv he zatin ghetlam. He zatint don akarache nal'l melltat, lamb ani gol/vattkulo. Holduvo, pachvo ani tambddo oxe tin rongamnim te melltat.

He zatichea maddachea kovllant 32 chuddtam distat. Roilea uprant 8 vorsamnim utpon diunk lagta. Eka maddak vorsak 10 nal'lancheo penddeo ietat, ani eka vorsak eka maddak 80-190 nal'l utpon divpachi takot asa (sarasari 151 nal'l). Eka maddak eka vorsak choddan – chodd 316 nal'l utpon mell'llam oxem nond kel'lem asam.

Eka nal'lak 143 gram khobrem mellta zalear telachem

proman 64% asta.

Banavlechi pachvea rongache gol zatik utpon diupachi takot bori asa mhonn ti zat Konkan Krixi Vidyapit-n (Dapoli,Maharastra) "Pratap" nanv diun vevsaik lagvoddi khatir prokaxit kel'li asa.

**Nanora:-**

Bicholim talukant axil'lea Nanora/Nanoda ganvche nanvan he zatik vollkhotat. Hi zat ut'tor Gõyant chodd promannan roitat. Roilea uprant 8 -9 vorsamnim utpon diunk survat zata. He zatichem utpon diupachi takot 50-150 nal'l asa (sarasari 104 nal'l) Eka maddak eka vorsak choddan chodd mhollear 195 nal'l utpon nond kel'lem asam. Banavle nal'la von ho nal'l motto asta ani eka nal'lak 174 gram kobrem mellta ani 64.5% telachem proman asta.

**Kalangut:-**

Hi zat ut'tor Goyant chodd promannan roitat. Bardez talukantlea 'Kalangut' gaunchem nanv he zatik poddlam. Hi zat usram fulta, 8-9 vorsam utpon diunk lagtat. Tichea kovllant 27-28 chuddtam astat.Tache nal'l lambot ani pachve. Eka vorsak eka maddak 60-120 nal'l utpon mellta tor tachi sarasari eka maddak eka vorsak 101 nal'l asa. Eka maddak eka vorsak choddan chodd mhollear 230 nal'l utpon nond kel'lem asam. Nal'l 'Banavle' zati poros motte astat. Eka nal'lak 148.5 gram kobrem mellta ani telachem promann 68% asam.He zatichem kobrem datt ani ruchik godd.

***Toktto (4)***

**Banavle, Nanora ani Kalangut zatichea sobhavgunachi tulla.**

| Kr. Ank | Sobhavgunn | Banaule | Nanora | Kalangute |
|---|---|---|---|---|
| 01 | Koullant Chuddtam | **32** | 30 | 27-28 |
| 02 | Chuddtanchi lambai (Meter) | **5.78** | 5.70 | 5.31 |
| 03 | Eka chuddtak chutt'teo | 239 | **242** | 338 |
| 04 | Utpon diunk vorsam lagtat | **8** | 8-9 | 8-9 |
| 05 | Eka maddak, eka vorsak nal'lancho pen'neo | **10** | 8.5 | 9 |
| 06 | Eka maddak eka vorsak sarasari utpon (Narl'l) | **151** | 104 | 101 |
| 07 | Eka maddak eka vorsak choddanchoddd utpon nond kelam (Nal'l) | **316** | 195 | 230 |

| | | | | |
|---|---|---|---|---|
| 08 | Nal'lachem vozon (Gram) | 602.8 | **890** | 824.5 |
| 09 | Nal'lachi lambai (cms) | 21.5 | **27.3** | 26.1 |
| 10 | Nal'lachi rundai (cms) | 18.4 | 20.6 | **21.8** |
| 11 | Son'nachi dhattai (cms) | 1.9 | **2.7** | 2.4 |
| 12 | Kobreachem vozon (Grams) | 143.0 | **174.0** | 148.5 |
| 13 | Eka maddak, eka vorsak kobrem (Kilo) | **21.6** | 18.2 | 15.0 |
| 14 | Eka hectarik khobrem (Ton) | **3.7** | 3.2 | 2.6 |
| 15 | Telachem promann | 64% | 64.5% | **68 %** |
| 16 | Eka maddak eka vorsak tel (Kilo) | **13.8** | 11.7 | 10.2 |
| 17 | Eka hectarik tel (Ton) | **2.4** | 2.0 | 1.8 |

**West Coast Tall (WCT):-**

*Fotto -5 — Filipines ordinary*

Hi ek sadi unch vaddpi zat, ji Bharotachea paschim doriadeger dista.Tachem orthik jivit 70-80 vorsam asta ani ti 6-7 vorsamnim fulunk lagta. Hi ek neamit lagpi zat ani tika vorsak 12 poieo ietat. Eka maddak eka vorsak 40-100 nal'l utpon mellta, zalear sarasari 80 nal'l utpon mellta.Sarasari 176 gram kobrem mellta zalear telachem promman 68% asam. Hi zat udkacho unnav sonsun gheunk xokta.

Her lamb vaddpi zati asat teo heo - Laxadeep Ordinary vo Chandra Kalpa (Sarasari 100 narl eka maddak, eka vorsak), Andaman ordinary (94 nal'l) , East Coast tall (70 nal'l), Tiptur tall (86 nal'l), Filipines ordinary (110 nal'l).

**<u>Mottveo Zati:-</u>**

Heo zati akaran mottveo, sorvsadaronn 5-7 meter unch vaddtat ani tachem aiyush 40-50 vorsam itlench asta. Ti vegim mhollear 3-4 vorsamnim nal'l diunk lagta. Kobrem pattol ani komi asta ani telachem proman 60% asta. Hi zat addsoram khatir ani sobaie khatir roitat.

**'Chowghat Orange Dwarf' (COD):-**

He zatiche nal'l poieo ani pidde naringi rongache, polleunk sundor distat. Roilea uprant 3-4 vorsamnim utpon diunk lagta. Sarasari eka

Fotto - 6 — Chowghat orange Dwarf (COD)

maddak eka vorsak 65 nal'l utpon mellta. Eka nal'lak kobreachem promann 150 gram ani 66% telachem promann asta. Hi zat addsoram khatir vaprunk ekdom ut'tom. Addsorachem udok pieunk godd lagta ani tatunt 7% sakor, 20 ppm *sodium* ani 2000 ppm *potassium* asta. Hi zat vevsaik pod'dotin addsoranchi lagvodd korpak sifarus kel'li asa.

**Gangabodan:-**Hi zat Andhra Pradesh rajeant purv Godavari jhil`leant chodd promannan roil'li dista. Hi pachvea rongachi zat. Nal'l akaran lamb astat ani 4-5 vorsamnim utpon diunk lagtat. Eka vorsak ek madd 50-74 narl'l utpon dita, ani tachi utpon diupachi tank sarasari 68 nal'l asa. Ek nal'l 160 gram kobrem dita ani telachem promann 68 % asam.

Her mottvi zati asat teo heo — *Chowghat green dwarf, Malayam yellow dwarf, Malayam orange dwarf,* ani *Malayam green dwarf*

Fotto - 7 — D x T

**Bhorxicheo (Sankarit) Zati:- (Hybrid Varieties)**

Lamb (vo unch) ani mottvi zat bhorsun (sankar korun) TxD ani DxT oxeo don noveo zati toiar kortat. TxD zat toiar korunk lamb (Tall) zat bail (vo avoi) mhonn vapurtat ani mottvi (Dwarf) zat dadlo (vo bapui) mhonn vapurtat. DxT zat toiar korun mottvi zat bail (vo avoi) mhonn vapurtat ani lamb zat dadlo (vo bapui) mhonn vapurtat.

Heo bhorxicheo zati 3-4 vorsamnim fulunk lagtat, tankam bhorpur utpon mellta. Eka maddak, eka vorsak 150-200 odhik nal'l melltat. Tellachem promann 68%-78% asta

ani eka nalak 125-150 grams kobrem mellta.
Bharotant sod'deak 11 bhorxicheo zati toiar kel`leo asat *(Polle Toktto 5).*

*Toktto 5*

| Kr. Ank | Bhorxicheo Zati | Pallak (Parentage) Avoi & Bapui | Sarasari utpon eka maddak eka vorsak (Nal'l) | Kobrem eka nal'lak (Gram) | Telachem Promann (%) | Rajea khatir Sifarus Kelea |
|---|---|---|---|---|---|---|
| 01 | Chandra Sankara | Chowghat orange Dwarf (COD) x West coast tall (WCT) | 116 | 215 | 68% | Kerala |
| 02 | Kera Sankara | WCT x COD | 108 | 187 | 68% | Kerala Maharastrache & Andhra Pradeshchea doria deger |
| 03 | Chandra Laksha | Lakshadeep Orange (LO) x COD | 109 | 195 | 69% | Kerala |
| 04 | Laksha Ganga | LO x Ganga Bodan (GB) | 108 | 195 | 70% | Kerala |
| 05 | Ananda Ganga | Andaman ordinary (AO) x GB | 95 | 216 | 68% | Kerala |
| 06 | Kera Ganga | WCT x GB | 100 | 216 | 66% | Kerala |
| 07 | Kera Sree | WCT X Malayam Yellow dwarf(MYD) | 130 | 216 | 66% | Kerala |
| 08 | Godavari Ganga | East coast Tall (ECT) x GB | 140 | 150 | 68% | Andhra Pradesh |
| 09 | Kera Sowbhagya | WCT x SSAT | 116 | 196 | 65% | Kerala |
| 10 | VHC-1 | ECT x DG | 98 | 135 | 70% | Tamilnadu |
| 11 | VHC-2 | ECT x MYD | 107 | 152 | 69% | Tamilnadu |

*Tokto 6*

**Bharotant prokaxit kel'lea kai lamb zatichea utponachi, kobreachi & telachea promanachi tulla.**

| Kr. ank | Zat | Sarasari utpon, eka maddak, eka vorsak (Nal'l) | Kobrem eka nal'lak (Gram) | Telachem promann (%) |
|---|---|---|---|---|
| 1. | Lakshadeep Ordinary | 100 | 176 | **72 %** |
| 2. | Pratap (Benaulim Green Round) | **151** | 152 | 64% |
| 3. | Philippines | 110 | **189** | 66% |
| 4. | West Coast Tall | 80 | 176 | 68% |

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# IV
# Kovate Toiar Korpachem Porsum (Nursery)

Nal'l maddachi lagvodd kovate roun kortat. "Bim toxem bath" oxi ek mhonn'ni asa. Bim borem aslear pik bori ieta. Maddachi utpon diupachi takot kovateachea dorjeacher oulombun asta. Nal'l ek sorv kall jieupi pik zal'lean tachem utpon diupachi purai takot roilea uprant 10-12 vorsamnim kollun ieta. Hatak melltat te nal'l rounche nhoim, punn bore tech nal'l vinchun kaddun rouche. Nal'lantlean nirmann zaupi kovate bore vo vaitt te fokot 10-12 vorsamnim, kovato utpon diunk laglea uprant gomta. Ani somoz te vaitt dorjeache (komi utpon diupi) zale zalear 10-12 vorsam ani kelolo khorch funkott vetolo ani lagvodd luskonant poddtoli. Hea khatir kovate toiar korunk, bore tech zatiche, bore tech nal'l vinchun kaddop khub mhotvachem. Nal'lachi lagvodd korunk svota kovate toiar korop sodanch borem. Punn hem xokeo na zalear, kovate fokot sorkari porsantlean vo sorkaran man'neotai dil'le khatrechea porsantlean vikte gheunche.

**Avoi maddachi nivodd:-**

Bore nal'l mellunk sokol dil'le sobhavgunn axil'le madd, 'avoi madd' mhonn vinchun kaddche.

(1) Maddak 20 vorsam odhik asunk zai.
(2) Neamit utpon diupi asunk zai.
(3) Dor vorsak komich tori 80 nal'l utpon diupi asunk zai.
(4) Madd rog mukt asunk zai.
(5) Nal'l mod'deom akarache asunk zai.
(6) Maddak komich mhollear 28-30 chuddtam asunk zai ani kovol sontre akaracho asunk zai.
(7) Chuddtache pidde mottve punn ghott ani rund asunk zai ani te maddak ghott doson asunk zai.
(8) Nal'lanchi penn mottvi punn ghott asunk zai, ani ti piddeacher bosun urunk zai, sokol lambonk upkarona.

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Je madd vanzam ditat ani chodd bondde zoddtat te madd nakarche. 60 vorsam vhoir piraieche madd avoi-zadd mhonn vinchun kaddche nhoi.

Toxench, je madd xennache vo kompostache ghaire kuxik asat vo

zankam chodd promannan sarem ani udok mellta te-i madd nakarche. Je madd kallji ghenastana vo komi kallji gheun chodd utpon ditat, te maddache nal'l biak vo kovate kaddunk sodanch bore.

**Bhienem Nal'lachi nivodd:-**

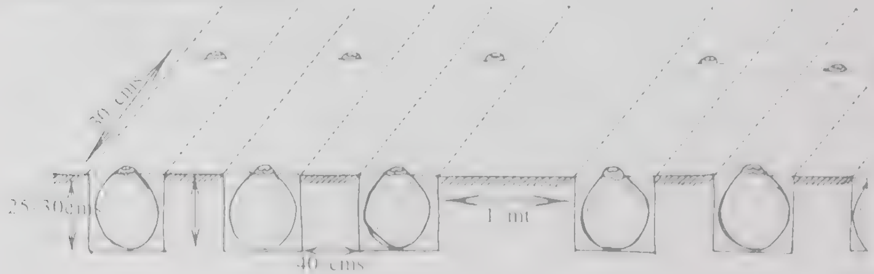
Bhienem nal'lachi nivod kortana he sokol dil'le mud'de lokxant dovorche.

- Bore purai zunn zal'le, 11-12 mhoineache nal'l biak vapurche.
- Tornne nal'l vapurche nhoi.
- Nal'l mod'deom te motte akarache asche.Vankdde-tinkddea akarache nal'l nakarche.
- Janer-Febrer paddeache nal'l roupak vapurche . Osle nal'l bore kil'lun ietat ani bore dorjeche ani ghottaieche kovate nirmann zatat.
- Nal'l paddtana zokhmi zaunk diunche nhoi. Porsant – kirlunk ghalche adim don mhoine tori savllek samballun dovorche.
- Attok ani komi udkache nal'l biak vapurche nhoi.

**Zageachi nivodd:-**

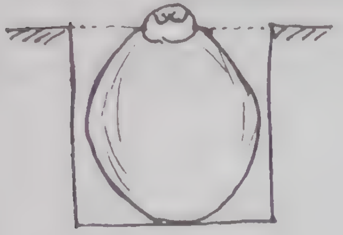
1) Udkachi soi uplobd axil`lea zageachi nivodd korchi.
2) Nivdun kaddlolo zago udok sattun urta toslo asum noie.
3) Porsantle kovate khonnun kaddunk sompem zaunk mati mhov vo kosal asop gorjechi.
4) Dhovio muio vo vaiti pois dovrunk matient "Phorate 10G", hem kiddnaxak, eka choukon meter-ak 10 gram, matient misoll korchem, vo "Chloropyriphos 20EC" he kiddnaxak, eka litre udkant 4 ml he promannan misoll korun, zomin bhizounchi.
5) Venchun kaddil'lea zagear thodi savlli aslear upkarta, punn chodd savlli aslear kovate osokt zatat ani unchaien vaddtat.

**Lagvoddichi pod'dot:-**




*Chitr -3, Porsum*

1) Zomin khonnchi ani 25-30 cms khol chorio vo khollio kaddcheo. Don kholliam modem 40 cms ontor dovorchi. Kholliechi lambai sorvsadhorann 100 narl bostat itli aschi. (*Chitr 3*)
2) Dor 3 khollieam uprant bhounpa khatir 1 mt. zago rikamo soddcho (*Chitr 3*)
3) Nal'l khollient, 20-25 cms kholl, vollin rounche. 2 nal'lam modem 30 cms ontor dovorcho. *(chitr 3)*
4) Nal'l addve vo ubhe rounche (*Chitr 4 &5*). Addve roil'le nal'l vegin kirlun ietat, pun jedna kovate pois zagear vhorpache aslear, ubhe rouop bore. Addve roil'le nal'l eka zagear than dusrea zagear hadd vhor kortana dukh lagunk xokta.



*Chitr -4 Ubhe*

*Chitr -5 Addve*

5) Nal'l ubo rouncho aslear, dent vhoir dovrun chorient/khollient rouncho, ani mati ghalun kholli bond korchi, punn nal'lachea denttacho bhag purouncho nhoi.
6) Zomin oli urta itlem udok neman diunchem. Udok sattoun urchena hachi kallji gheunchi.
7) Porsant nal'l Jun mhoineant rounche.

**<u>Kovate toiar korpachea porsachi kallji:-</u>**

Nal'l vegin kirlun ievop ani rog mukt bore dorjedar kovate toiar korop mhotvachem zaun asam. Hea khatir……

1) Chodd khor vot lagta zalear mattov ghalun thoddi savlli diunchi.
2) Noddnni ieunchi nhoi mhonnun ani toxench zomnintli thonddai samballun dovorunk savodd ghalchi. (Pachvo pallo vo chuddtam ghalun zomin dhapchi).
3) Noddnni kaddun porsum nivoll dovorchem.
4) Kidd-rog laglear favo te upai gheunche.
5) Nal'l roile uprant 2 – 2 $^1/_2$ mhoineamnim kirlunk survat zatat ani 5 mhoineamnim sumar 90% nal'l kirlun ietat.
6) 5 mhoineam uprant kirlun ail'le kovate osokt astat ani oslea kovateant'lean toiar zal'le madd usram lagtat ani tankam utpon

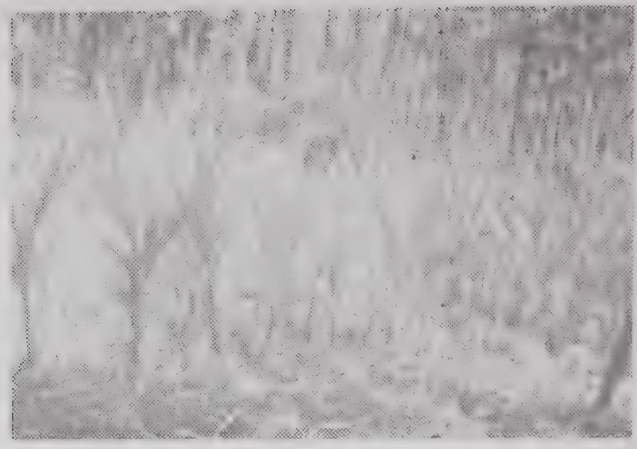


*Foto -8 — Porsum*

khub komi mellta. Hea khatir panch mhoine porian kirlun ieunk nant te nal'l kaddche ani kobreak vapurche.

**Kovateanchi nivodd:-**

Porsantle sogllech kovate roupak upkartat toxe asonant, tantle fokot 60-65% kovate bore astat ani roupak upkartat. Rounk venchun kaddlolea kovateank he sokoile gunn asunk zai.

1) Kovato rog mukt asunk zai.
2) Kovateachi vadd bori zal'li asunk zai.
3) Kovato vegim kirlun ieta to sodanch boro.
4) Kovato sumar 9-12 mhoineancho asunk zai.
5) Kovateak komich-komi 5-6 panam asunk zai.
6) Kovateacho gollo boro ghot ani mottem aspak zai, tacho gher (*girth*) sumar 10 cms asunk zai. (*Chitr 6*).

*Chitr - 6 — Kovateachi nivodd*

7) Panam vegin futt'tat vo sutt'tat te kovate ekdom bore, vegin vaddtat ani vegin lagtat.
8) Kovateak bhorpur mullam/pallam futtil'lim asunk zai.
9) Osokt kovate, zanchi vadd bori zaunk na ani toxench barik ani lamb vaddil'le kovate nakarche.
10) He vhoir dil'le gunn monant dhorle zalear eka porsantlean fokot 60-65% kovate bore mellunk xoktat. Hea khatir 60-65 kovate zai zalear 100 nal'l kirlunk ghalunk zai.
11) Kovateache xivddek dhorun kovato porsantlean kednanch umttauncho nhoi , punn sorbhonvtonnchi mati kaddun pikas mullak ghalun soukas ukollcho.
12) Kovate kaddlea uprant 2-3 sumanam bhitor roum ieta, punn torui astana 10 disam bhitor rovop borem. Mot'tve zatiche kovate 2-3 disam bhitor rounche.

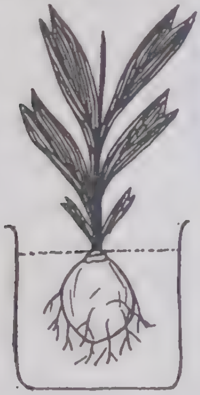
## PLASTIK POTIENT KOVATE TOIAR KORPACHEM PORSUM:- (Polybag Nursery)

Plastik potient toiar kel'le kovate sodanch bollvont astat, tanchi pallanchi vadd bori asta ani te bore lagun ietat. Osle kovate vegin vaddtat ani vegin utpon ditat.

**Koxem Rovop:-**

Adim sanglam toxem bore nal'l venchun kaddche ani zomnint kirlunk ghalche. Narl eka-mekak tenkun kirlunk ghalum ieta. 8-10 cms unch kirlun ail'le nal'l rounk vapurche.

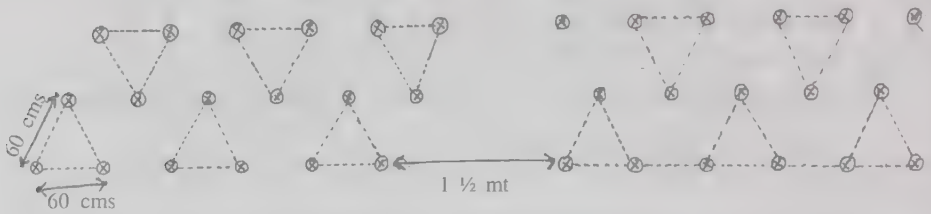
Kallea rongachi 500 'guage' dhattai-echi poti gheunchi, motte nal'lam khatir 60x40cms (60 cms lamb ani 40 cms rund) akarachi ani barik nal'l-am khatir 40x40 cms akarachi poti vapurchi. Udok nisrun vochpak potiechea tollak 8-10 barik burak korche. Matient kos /



*Chitr - 7 — Plastik potient kovato*

renv misoll korun poti bhorchi, 3 bhag mati zalear ek bhag kos hea promannan misol korchem. Kirlun ail'lo kovato potient roitana kovateacho gollo matient purouncho nhoi (*Chitr 7*).

Potient kovate roilea uprant teo trikon pod'dotin (*Polle Chitr 8*) manddun dovorcheo. Don potiam modem 2 foot (60 cm) ontor dovorcho. 6 vollin uprant 1-1 $^1/_2$ metre zago soddcho.(*Polle chitr* 8)




*Chitr -8 — Trikon pod'dot*

**Kallji:-**

1) Bori vadd zaupa khatir chukoinastana udok diunchem.
2) Porsum noddnni ani kiddi pasun mukt dovorchem.
3) Potientlea kovateank sarem ghalun ieta. Kirlun ailea uprant 2 mhoineamnim dor eke potiek 20 grams Ammonium Sulphate ani 25 gram Palash (Murate of potash) diunchem. Kirlun ailea uprant 45 gram Ammonium Sulphate ani 45 gram Palash diuchem. Sarem dilea uprant rokddench udok diuchem.

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# V

# Nal'lach Lagvodd

**Bhagayatichi / Kullagorachi Sthapni**

Nal'lachi lagvodd korunk Gõycho havaman ani mati favo tosli zaun asa. Nal'lachem borem utpon mellunk sokol dil'le mud'de monant dhorche:

1) Tapman:- Sarasari vorsacho tapman 27° C adarsh zaun asa. 5-7° C komi-chodd bodlum ieta.
2) Paus:- Dor vorsak 1800-2500 mm paus purai mousamant bore torem vanttun poddunk zai.
3) Vot:- Dor mhoineank sarasari 120 horam, ani eka vorsak sarasari 2000 horam vot mellunk zai.
4) Ollsan (Damatt):- Vareant 80-90% ollsan asop borem. 60% sokol ollsan aslear maddachi vadd bori zaina.
5) Mati:- Udok santtun urona tosli mati / zomin ekdom bori. Matiechi kholai 1-1 $^1/_2$ metre asunk zai. Matient xendria sareachem promann bhorpur asunk zai. Matiek udok samballun dovorpachi tank asop gorjechem. Matiechi samu (pH) 5.8-8.0 asunk zai.

**Roupacho Vell:-**

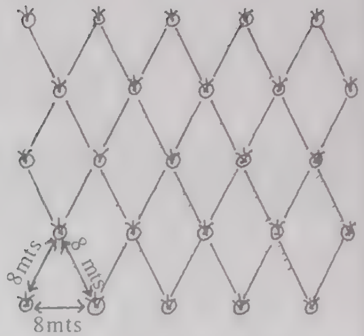
Pausache survatek kovate rounche. Punn udkachi soi asa thoim Maiachea mhoineant kovate rovop borem, te pausa adim bore sthapun ietat. Zoim pausachem udok tharon urta thoim kovate pausachea nimanea bhagant rounche.

**Ontor ani roupachi pod'dot:**

Kovateam modem favo ti ontor sambhallinastana lagvod keli zalear nal'lachea utponacher vaitt porinam zata. Nal'lache lagvoddintlean bhorpur utpon ani bori ienavoll mellpa khatir choukoni vo trikoni pod'dotin, 8 metre ontor samballop gorjechem (*Polle chitr 9 ani 10*). Hi 8 mt. x 8 mt. ontor, samball'lear modem axil'lea meklea zageant dusreo piko gheum ietat. Dusreo piko ghenastana fokot kovatech roupache asl'lear 7 mt. vo 7.5 mt. ontor samballun choukoni vo trikoni pod'dot vaprun kovate roun ietat.

Komi ontor dovorlear, madd lamb vaddtat, osokt zatat, utpon mellunk uxir zata ani pik khub komi melltta. Hea sokoilea toktteant veg-veglli pod'dot ani ontor vaprun, kovateanchi sonkhea kitli bosta ti dakhoilea.

Chitr - 9 —Choukoni Pod'dot



Chitr - 10 —Trikoni Pod'dot

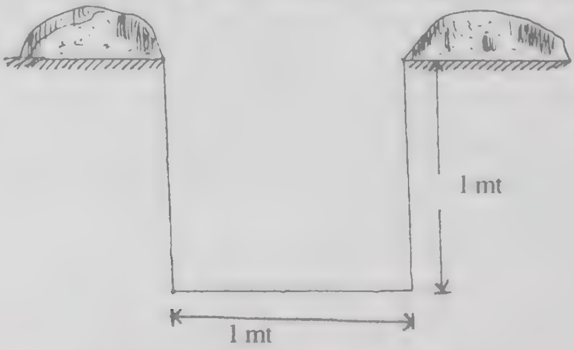
<u>*Toktto – 6*</u>

| Kr. Ank | Ontor | Roupachi Pod'dot | Sonkea, dor eka hectarik (10,000 choukon meter) |
|---|---|---|---|
| 01 | 8mt x 8 mt | Choukon | 156 |
| 02 | 7.5 x 7.5mt | Choukon | 178 |
| 03 | 7.5 mt | Trikon | 205 |
| 04 | 8 mt | Trikon | 180 |

Bandacher kovate roupache aslear ekech vollin 6mt ontor dovrun rounche. Mottve zatiche kovate 6 mt ontorache roum ieta. Unch imarotichi vo zhaddanchi sauli poddta thoim kovate rounche nhoi.

**<u>Nem Kaddop</u>**:-

Nal'lache lagvoddi khatir venchun kaddil'lea zagear zhaddam-peddam, zhompam ani mullam bi aslear kaddun zago nitoll korcho.Nem kitlem khol aschem tem matiecher tharlolem asta. Saman'ea matient nem 1 meter rund, 1 meter lamb ani 1 meter khol aschem. (*Polle chitr 11*)

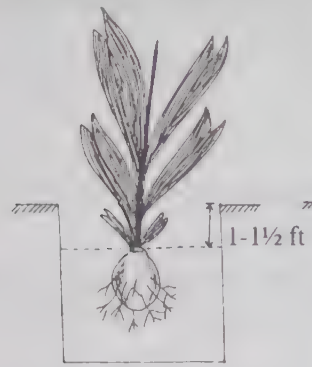


*Chitr - 11 — Nemacho akar*

Fatranchi vo ghott mati aslear nemacho akar matxe vaddouncho. Nem pausachea adim kaddun gheunchem ani vaitechem akramon pois dourunk tatunt sukho pallo ani son'nam ghalun bazun gheunchem.

**<u>Kovato Rovop:-</u>**

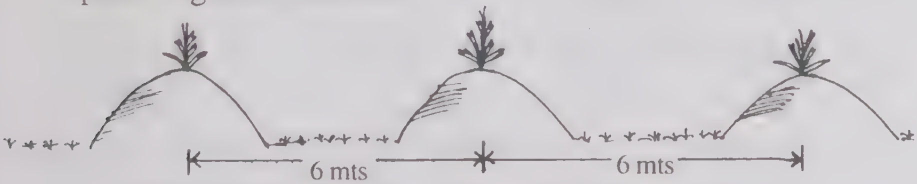
- Kovato rounche poilim matient xendria podart (je porim koddu neem-achi pendd, kuslelem xenn, gaindoll sarem, kuslolo pallo) misoll korun nem' bhorun guenchem.
- Zomin ghot fatranchi aslear, nem'achea pondak 1-2 kilo mitt ghalun ieat. Mitt ghatlear zomin mov zata.
- Zoim pausachem udok tharon urona thoim kovate 1 – 1½ foot khol rounche (*Polle chitr 12*).
- Zoim pausachem udok tharon urta thoim kovate zomni borobor rounche (*Polle chitr 13*).




*Chitr - 12 — Khol rovop*

*Chitr 13 — Zomni borobor ravop*

- Goroz titlem nem mattien bhorlea uprant modekat nal'l bosta itlo ek lhan burak kaddun kovato rouncho, ani bhonvtonnchi mati damun gheunchi. Roita astana kovateacho gollo ani panam matient purounchim nhoi. *(Polle chitr 12 ani 13).*
- Jeo zomni sokol asat, ani pausant buddatt thoim matiechi-ras ghalun vo band ghalun (zomin unch korun) kovate rounche *(polle chitr 14 ani fotto - 9)*. Oslea zageamnim kovate paus somplea uprant vo gimant rounche.




*Chitr - 14 — Matiechi ras ghalun kovate rovop*

*Fotto - 9 — Bhandacher kovate rovop*

**Roilea uprantchi kallji:-**

Kovateachi bori vadd zaunk ani borem utpon mellunk, survatek sakun bori kallji ghevop ekdom mhotvachem.

- Pausachem udok nem'ant ieun sattoun urchem nhoi mhonn kallji gheunchi.Udok satoun urta zalear ek chori marun udok soddun diunchem.
- Kovate nem'ant 1-1½ foot khol roilea zalear te zoxe vaddtat toxem nem souka – souka matien bhorun gheunchem.
- Gimant dispottim ximpche.
- Kovateachea kovllant mati bhi poddllear kaddchi.
- Nem'antli noddnni kaddchi.
- Je kovate bore vaddonant vo meleat zalear te bodolche.
- Gorvam ani ier zonavoram thaun rakhonn korunk sori marchi vo addo/durig kaddchem.
- Kidd-rog laglear favo te upai gheunche.

# VI
# Sareacho Karbhar (Vevosthapon)

Khoinchei pikek borem utpon mellunk, borem utpon diupi zat ani sifarus kel'leo tantrik pod'doteo vaprop mhotvachem zaun asam.

**Sarem:**

Madd, sareak ani udkak boro protisad dita, haka lagun sareachem ani udkachem iogia karbhar / vevosthapon korop mhotvachem zaun asa. Madd 6 vea te 7 vea vorsa sakun utpon diunk lagta. Purai vaddil'lea maddak dor mhoineank, sorvsadharann ek chuddit ieta, ani dor chuddtant ek poi ieta. Hea kheritponnak lagun maddak favo titlem sarem, ani udok dilear madd bhorpur utpon diit asta.

- Kovateachi vadd bori zaunk, vegin fulunk ani borem utpon diunk, kovateak poilea vorsa thaun chukoinastana sifarus kel'lem sarem diunchem *(polle toktto 7).*
- Favo toslem, favo titlem, favo tea vellar ani iogia pod'dotin sarem dilearuch sareachi kariaxamta vaddtta (sareacho boro upeog zata).

*Toktto 7*

**Maddak sifarus kel'lem sarem.**

| Voros | Natr (gram) | Sfurad (gram) | Palash (gram) |
|---|---|---|---|
| 1 lem | 50 | 40 | 120 |
| 2 rem | 160 | 120 | 400 |
| 3 rem | 330 | 240 | 800 |
| 4 tem | 500 | 320 | 1200 |

Vhoir sifarus kel'lem Natr (Nitrogen), Sfurad (Phosphorus) ani Palash (Potassium) sarim mellunk, he sokol dil'lea rasainik sareacho upeog korcho (tokto 8 vo tokto 9).

*Toktto 8*

| Voros | 19:19:19 Sarem | Murate of Potash (Pothas) |
|---|---|---|
| 1 lem | ½ Kil | ---- |
| 2 rem | 1 Kil | ½ Kil |
| 3 rem | 2 Kil | ¾ Kil (750 Grams) |
| 4 them voros & tea uprant dor vorsak | 3 Kil | 1 Kil |

*Toktto 9*

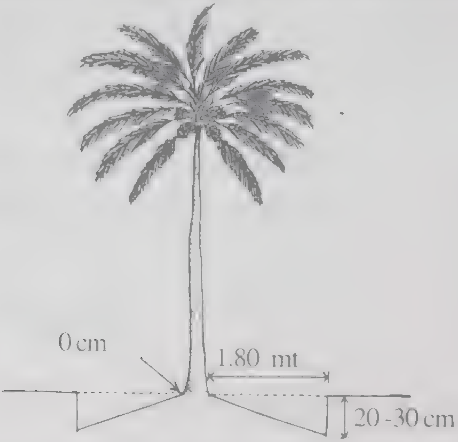
| Voros | 15:15:15 Sarem | Murate of Potash (Pothas) |
|---|---|---|
| 1 lem | ½ Kil | ---- |
| 2 rem | 1 Kil | ½ Kil |
| 3 rem | 2 Kil | ¾ Kil |
| 4 tem voros ani tea uprant dor vorsak | 3½ Kil | 1 Kil |

Chodd paus poddta tea disamni ani zomin chodd taplea tedna sarem kednanch ghalchem nhoi. Sarem ghalta tedna zomnint favo titli ollsan asunk zai. Chodd paus poddtta tednam, sarem ghatlear khub-xem sarem virgollun vhaun veta ani maddak mellona.

- Poilea vorsak, sifarus kel'lem sarem, roilea uprant tin mhoineamni diunchem.
- Khub paus poddta tea zageamnim 1-2 kil mitt ghalum ieta. Tech porim nhoicho mollpo maddank ekdom boro.

**<u>Sarem ghalpachi pod'dot</u>**:-

Purai vaddil'lea maddachim, sarem oddun gheupachim choddan-chodd pallam 1.80 metre gheraiacher astat. Haka lagun sarem mulla sakhun 1.80 metre gherai-echea zageacher, vattkulem allem kaddun ghalchem. Allem maddachea mullak sakun suru korchem. Mulla lagim chodd khol khonnchem nhoi, ilem-ilem khol ghalit xevottak 20-30 cms khol khonnchem (*Polle chitr 15*). Madd lhan astana allem komi gheraiacher



*Chitr 15 — Sarem ghalpachi pod'dot*

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*Fotto -10 — Sarem ghalpak allem kaddop*

kaddchem ani purai vaddil`lea maddak 1.80 metre gheraiacher kaddchem. Sifarus kel`lea rasainik sarea vangdda, savoll ani xendria sarem ghalun allem bhorchem ani matien puroun gheunchem. He pod'dotin sarem ghatlear, ghatil'lem choddan-chodd sarem maddak melltta.

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*Fotto -11— Sarem ani savoll ghalun allem purovop*

**Sarem ghalpachi dusri ek pod'dot:-**

Mulla sakhun 1 meter pois allem kadchem, sifarus kel'lem sarem ghalchem ani allem purounchem (*Polle chitr 16*). Mull ani allea modem 1 meter zago urto to khoncho. Allem sumar 30 cm. rund ani 20-30cm. khol aschem.

*Chitr 16*
*Sarem ghalpachi pod'dot*

Mati ambot aslear 1 kil 'Dolomite' vo 1 kil Chuno vo ½ kil 'Magnesium Sulphate' dor eka maddak, sifarus kel'lea sarea vangdda ghalchem. Dolomite vo chuno Abril-Mai mhoineant ghalcho. Chuno ani rasainik sarem vangdda kednanch ghalchem nhoi.

Sifarus kel'lem Sfurad dor vorsa vapurlea uprant, Sfuradachem promann matient vaddtta ani jedna Sfuradachem promann 20 ppm vhoir ghelea uprant thoddim vorsam Sfurad sarem ghalinastana raunchem, 20ppm sokol ie poriant. Zorui tachem promann 10-20 ppm asam zalear sifarus kel'lea Sfuradacho ordo bhag diuncho.

**Pustik jin'nos – acho unnov**:-

Maddachi vadd bori zaunk ani borem utpon mellum dor vorsak sarem ghalun zomnnint gorjeche ani goroz title pustik jinos samballun dovorche.

Maddak , *Potassium* (Palash) , *Nitrogen* (Natr), *Chlorine, Calcium, Magnesium, Sulphur, Phosphorus* (Sfurad), *Iron, Manganese, Zinc, Copper, Boron* ani *Molybdenum,* hea pustik jin'nosanchi goroz lagta.Hantle natr, Sfurad ani Palash he pustik jinnos chodd promann lagtat ani uril'le soglle komi promanan lagtat. Natr, Sfurad, Boron, Magnesium, Sulphur ani Chlorine he pustik jinnos-acho unnav maddant disun ieta.

**Natr-acho unnav**:-

Natr komi aslear maddachim sogllim chuddtam holduvim zatat. Chodd kall natr-acho unnav urlo zalear mhadi fulam komi ietat vo khubxe pautti poi-eoch ienant ani toxench maddachi vadd thambta ani vhoir kovla lagim madd bharik zait veta (haka ' Pencil Point' oxem mhonnttat).
Natr-acho unnav bhorun gheunk Natr aslolem sarim ghalchem.Tech porim maddache bhagayatint kod'doneacheo (moong, udid, chouli) piko ghetlear

zomnint Natr-achem promman vaddpak faideak ieta.

**Sfurad-acho unnav:-**

Sfurad komi aslear chuddtanchi donui vattamnim tambsar (brown) rongache tipke distat. He tipke soukas-soukas vaddot vetat. Bhailea chuddtank poile tipke poddtat ani holduvim zatat. Khub pautti pontam sukhtat. Sfurad-acho unnav bhorun gheupak Sfurad aslolem sarem vapurchem.

**Magnesium-acho unnav:-**

*Magnesium* komi aslear sokoilim chuddttam holduvim zatat. Chuddteo pontar sukhun holduveo zait fuddem vetat. Vot lagtat te bhag chodd holduve zatat. *Magnesium*-acho unnav bhorun gheupak 'Magnesium Sulphate ' vo 'Dolomite' vapurcho.

**Boron – acho unnav**:-

*Boron* hem pustik jinnos komi aslear him sokoilim lokxonam amkam distat.

1) Maddache kovllantlim 1-2 chuddtam mottvim urtat, tancheo chuddteo vidrup zatat, tankam khub mirio poddtat. (*polle fotto 12*)
2) Kovol fugar zata, mhonge chuddteo sarkheo suttonant, goch eka-makak tenkun rautat (*polle fotto 13*) ani modli xivddi sarkhi bhair soronam.

*Fotto -12 — Chuddteank mirio poddtat*

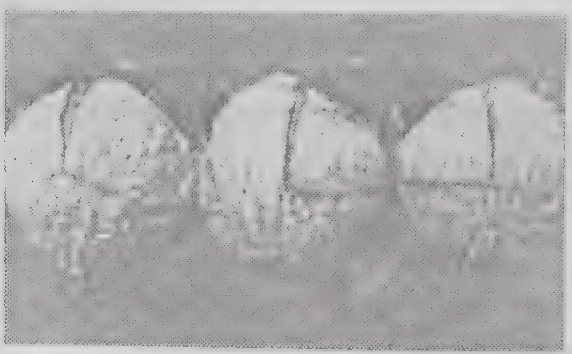
*Fotto -13 — Chuddteo eka-mekak goch tekun rautat*

Ier lokxonam distat tim him –

3) Kovlant chuddtanchi sonkia denvta.
4) Nal'lachem utpon khub denvta.
5) Pidde modekot futt`tat.
6) Bondde zhodd'tat.
7) Poieo komi ietat ani sarkheo suttonant.
8) Eke pendek thodde nal'l motte astat ani thode nal'l khub barik astat (Haka "Kombi & Pilam" ,"Hen & Chicken" lokxonam mhonnttat) (*polle fotto 14*)

*Fotto - 14 — "Hen & Chicken" lokxonam*

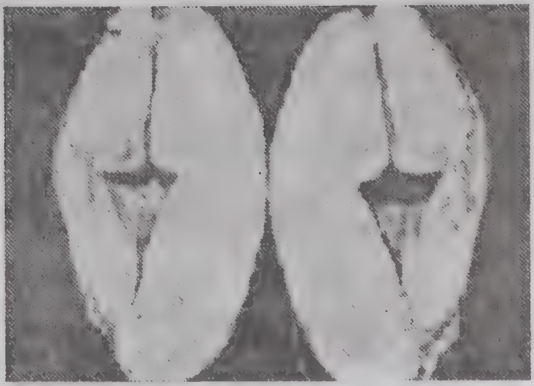
9) Nal'lachem son'n futt'ta.
10) Nal'l bhailean pollounk boro dista, punn soltokoch bhitorlean kott'ti futtloli dista. (*Polle fotto 15*)



*Fotto - 15 — Bhitorlean kot'ti futt'ta*

11) Kobrem kott'tentlean bhair sorta.
12) Nal'l bhailean kalle zatat.
13) Nal'lak fokot son'nuch asta,bhitor kott'tich asona. (*Polle fotto 16*)
14) Nal'lachem fattlem pont barik zata. (*Polle fotto 17*)
15) Piddeak chuddtcoch asonant, pontar kusta ani laslea sarkheo distat. *Boron*-acho unnav bhorun haddunk pausallo somplea uprant dor eka maddak 500 grams 'Borax' ghalchem.

*Fotto - 16 — Kott'ti naslolo nal'l*



*Fotto - 17 — Nal'lachem fatlem pont barik zata.*

**Sulphur-acho unnav:-**

*Sulphur* komi aslear, kovateachim chuddtam holduvim vo nharingi zatat ani tim uprant pontar kustat. Vhoddlea maddachi chuddtam purai kustat ani sokol lambtat. Chuddtanchim pontam sukhtat ani zoddtat. Nal'l-ant khobreachem vozon denvta ani avott zata.

*Sulphur* aslolem sarem vapurlear unnav bhorun gheun ieta.

**Chlorine-acho unnav:-**

*Chlorine* komi aslear maddachea sokoilea chuddtanchea chuddteancher holduve ani/vo nharingi tipke poddil'le distat. Heo chuddteo uprant pontar sukhtat. *Chlorine*-acho unnav bhorun gheunk 'Potasium chloride' vo gauntti mitt vapurchem.

**Pachvi sareachim pikam ani zhaddam rovop:-**

Zomnnint xendria podarth-achem promann vaddoupak sompo upai mhollear nal'lache bhagayatint pachvi sareachea pikanchi ani zhaddam-chi lagvodd korop. *Pueraria phaseoloides, Calopogonium mucunoides, Crotalaria juncea* (Sunhemp) ani chowli (*Vigna unguiculata*) him pachvim sareachim pikam nal'lache bhagayatint roupak ieog zaun asant.

Him pikam ieog tea vellar ani matient tonddai astanam, kosun matient misoll kelear bhorpur faido zata. Tech porim bhagayatiche deger / ximer Glirisidia (*Gliricidia maculata*) him pachvim sareachim zhaddam rounchim. Hea zhaddam-chim pachvim panam / khande katrun maddak savoll ghalchi.

Pachvim sarim.....

- Mati sudharta.
- Matient aslole pustik jinnos zhaddank mellun dita.
- Pustik jinnos virgolun vochpachem vattaita.
- Zomnicho tap niantrit korta.
- Mati vhanvun vochpachi vattaita.
- Noddnecher niontronn dovorta.

Fotto 18, *'Calopogonium Mucunoides' pikachi lagvodd.*

# VII
# Udkacho Karbhar.

Maddak gimachea disamnim favo titlem udok dilear nal'lachem utpon khub vaddta.

Udka vorvim maddachi.....

- Pustik jinnos chivun gheupachi tank vaddta.
- Maddak chodd poi-eo ietat.
- Xevkant mhadi fulanchem promann vaddta.
- Bondde zoddpache kọmi zatat.
- Nal'l motte zatat.
- Toxench nal'lant kobreachem promann vaddta.

Madd chodd kall taple zalear maddachem utpon devnta.

**Udok diupachi pod'dot:-**

Maddeachea sorvbhonvtim 2 metre gherai-acher vattkuli mer ghalun udok dium ieta. Hi pod'dot vapurli zalear maddak 4 disamnim ek pautti 200 litre udok ximpchem. Kovateak dor 4 disamnim ek pautti 45 liter udok ximpchem.

**Tembo Xipnne Pod'dot (Drip irrigation):-**

Jea zageamnim ximpunk udok komi mellta, tea zageamnim 'tembo xipnne' pod'dot ieog zaun asa, kiteak hi pod'dot vapurlear......

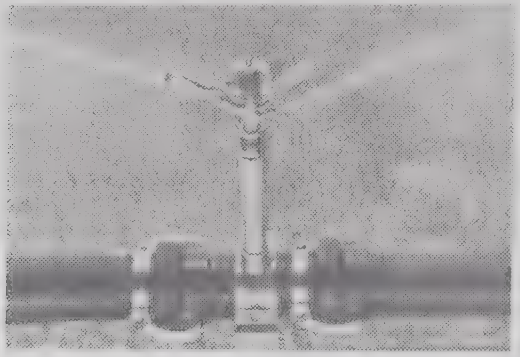
- Udkacho ibadd zaina.
- Goroztitlench udok maddak dium ieta.
- Ximpunk kamerim komi lagtat.
- Udkachi kariaxamta vaddta.

Tembo xipnne pod'dot vapurli zalear eka maddak dor disa 32 liter udok diumchem.

*Fotto - 19 — Tembo xipnne pod'dot*

## Xinvor Xipnne Pod'dot (Sprinkler irrigation):-

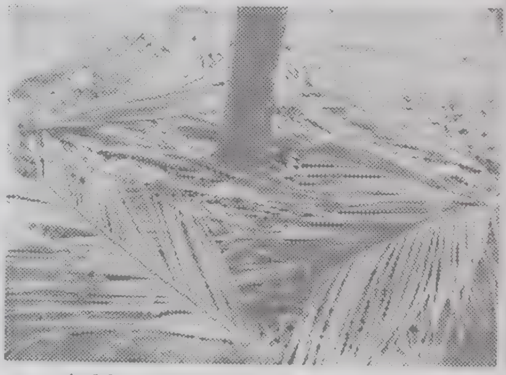
Nal'lache bhagayatint ontor piko ani mixr piko asat zalear xinvor xipnne pod'dot vapurchi. *(polle fottu 20)*



*Fotto - 20 — Xinvor Xipnne pod'dot*

## Zomnint udkachi ollsan rakhun dovrop:-

Jea zageamnim gimant maddank xipunk udkachi sovlot na te nal'l utpadokanim matient udkachi ollsan rakhun dourunk heo sokol dil'leo pod'doti vapurcheo.



*Fotto - 21 — Chuddtam ghalun dhapop*

1) Maddam modem aslolo zago neamit khonncho vo nangorcho.
2) Pausa kallachea nimannea disamnim, maddachea mullant sorvbhoutim 2 mt. gherai meren chuddtam, pachvo palo (savol), sonn'nam vo katho ghalun zomin dhapun gheunchi *(polle fotto 21)*
3) Rasainik sarem ghaltana sarea vangda bhorpur xendria podart je porim, kuslolem xenn, kompost, ani savol ghalchi. Xendria podart ghatil'lean mateichi ollsan samballun dovorpachi tank vaddta, ani maddak odhik pustik jin'nos melltat. Tech porim xendria podart matient aslole anujiv-anchi kriaxilltai vadoita.
4) Zomnint sonn'nam purlear, udok oddun gheunk ani rakhun dovrunk khub adar zata. Maddachea mulla sakun 2 mt pois vattkulem vo choukat, ½ mt. rund and ½ mt. khol chor/allem khonchem ani tatunt sonn'nam bhorchim ani voilean mati ghalchi. Dor 6-7 vorsamnim ek pautt oxim sonn'nam purchim. Sonn'nachea kateacho pitto ghalpacho aslear dor eka maddak, dor eka vorsak 25 kilo ghalcho.

# VIII
# Noddnnicho Karbhar

Noddnni neamit kaddina zalear maddak dil'lem udok ani sarem, noddnni apunn gheta ani haka lagun, maddachem utpon denvta. Noddnnecher niontronn haddpak he sokoile upai gheunche.

1) Maddam modem aslolo zago khonncho vo nangorcho.
2) Noddnninashok (noddnni marpachem vokod) "Paraquet 24% SL" (Gramaxone) 50 ml, dor 10 liter udkant misoll korun favarchem vo 'Glyphosate 41% SL' (Glycel / Roundup) 30 ml, dor 10 liter udkant misoll korun fokot noddnnecher favoro marcho.

*Fotto - 22 — Maddam modem aslolo zago Nangorcho.*

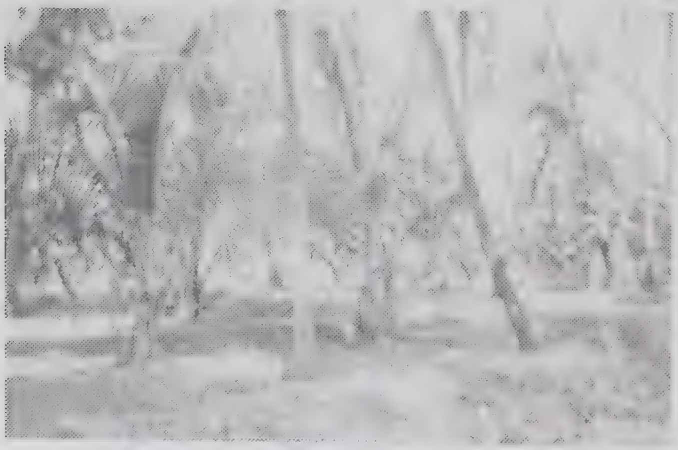
2123

# IX
# Faideaxir Na Te Madd Bodlop

Mhatare zal'le madd vo khub kall durlokx kel'le madd vo duens zal'le (Rog lagil'le) madd, je khub komi vo kainch utpon dinant te madd orthik nodren faideaxir asonant. Kainch utpon dinant te madd kaddche ani tea zagear nove kovate rounche.

Ze madd orthik utpon dinant tea madda laginch kovato rouncho ani 6-7 vorsamnim orthik utpon dina to madd kaddcho. Oxem kel'lear novea roil'lea kovateachem utpon mellosor xetkareak mhatarea maddachem thodem tori utpon mellta.

*Fotto - 23 — Durlokx kel'lem bhagayat*



*Fotto - 24 — Mhatare madda lagim nove kovate rovop*

# X

# Adhari Piko Gheupachi Xetipod'dot

Amchea Goyant nal'l roitat te xetkar choddxe lhan xetkar, motte bhatkar khub komi asat. He lhan xetkareachim lhan bhattam purai vorosbhor ghorabeak rozgar diunk xokonant, nhoim mhonn hea lhan bhatant'lean ghorabeachem udarposonn zaunk favo ti ienavoll mellona. Nal'lache bhagayatintlean odhik ienavoll mellunk madda vangdda adhari (pallvi) piko rounk zai.

**Ontor Xeti Pod'dot:-**

Zhoim mousomi piko, vo vorsuki piko vo don vorsuki piko, roitat taka ontor xeti pod'dot mhonnttat.

Dekhik – kell, on'nos, mirsang, bhaji, kod'dona, moxnibhiknna, konngam, bath, fulam, adi.

**Mixr Xeti Pod'dot:-**

Zhoim sodankall jievpi piko roitat taka mixr xeti pod'dot mhonnttat.

Dekhik – zaifoll, miriam, thiki, lovong, adi.

*Fotto 25 — Mixr xeti*

**Chodd Malleanchi Xeti Pod'dot:-**

Zhoim ontor piko ani mixr piko ekttaim roitat te pod'dot-ik chodd malleanchi xeti pod'dot vo chodd khizkot pod'dot mhonnttat.

Tech porim bhagayatint'lean odhik ienavoll mellunk dhudachim gorvam (deri) possum ietat. Gorvam khatir bhagayatint pachvo chorov roum ieta. Gorvam kodchean melltolem xenn xendria sarem mhonn vaprun ieta.

*Fotto - 26 — Bhagayatint deri*

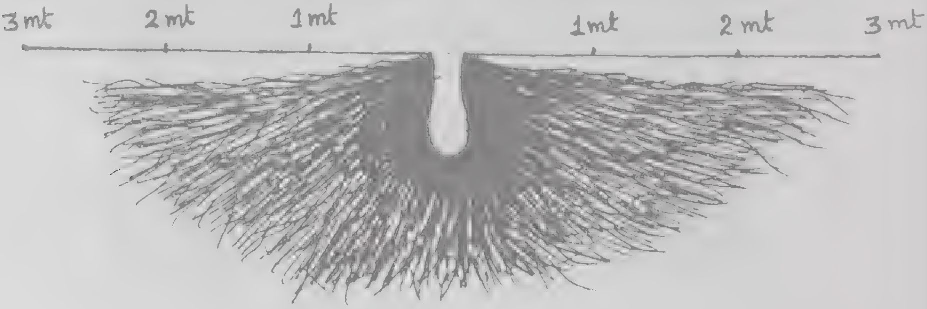
**Pallam-chi Ani Chuddtamchi Vadd Ani Vistar:-**

Ontr ani mixr pikanchi lagvodd korche poilim maddachea pallam-chi ani chuddtamchi vadd ani vistar koxo zata tem poloum-ia.

**Pallamchi vadd:-**

Eka borea kallji ghetlolea, modle piraiechea maddak sumar 4000 tim 7000 pallam melltat.

Hantlim 74% pallam 2 meter-am von pois vochonant ani 82% pallam fokot 30-120 cms kholaiecheruch astat. *(Polle chitr 17).* Haka lagun amchean mhonnum ieta ki madd fokot 25% zago folladikponan vapurta, ani uril'lo 75% zago her piko gheunk faideaxirponan vaprun ieta.



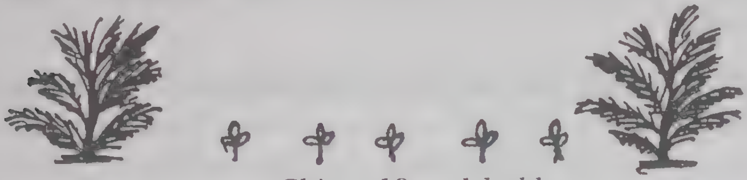

*Chitr 17 — Pallamchi vadd*

**Chuddtanchi vadd ani votacho vapor:-**

Maddachea chuddtanche sontrent'lean kitlem vot sokol rigta tacher oulombun adhari piko venchun kaddunk zai. Maddachi vadd ani chuddtanche sontrent'lean kitlem vot sokol rigta tacher adarun maddachem jivit 3 bhagamnim / paundeanim vanttum ieta.

**1lo bhag** ( Kovato roita tem, chuddtam purai vaddo meren –mhonge 8 vorsam meren)

Hea bhagant, survatek zomnint bhorpur vot rigta, (*Polle chitr 18*) ani zoxe-zoxe kovate vaddtat toxem-toxem vot zomnir rigpachem komi-komi zait veta. He bhagant maddam modem aslolea rikamea zageant ontor piko gheum ieta.



*Chitr - 18 — 1 lo bhag*

Dekhik - On'nos , kell, mirsan, bhaji, bath, kod'dono, moxnibhiknnam, fulam, voizuki zaddam, adi

**<u>2ro.bhag</u>:-** (lhan madd, 9-25 vorsam meren)

Hea bhagant, maddachi chuddtam khub vaddtat ani maddachem kandd mottvem urta ani haka lagun sokol zomnint khub komi vot rigta (*Polle chitr 19*).

*Chitr - 19 — 2ro bhag*

He khatir, he bhagant adhari piko rovop ieog nhoin.

**<u>3ro bhag</u>**:- (Purai vaddil'le madd – 25 vorsam vhoir).

Hea bhagant, chuddtam matxe denvtat ani chuddtanche sontret'lean khub vot zomnint rigta. He bhagant amchean mixr pikam gheum ietat. *(Polle chitr 20).*

*Chitr - 20 — 3ro bhag*

Dekhik – Zaifoll, miriam, thiki, lovong adi. Tech porim hea 3rea bhagant, chodd khizkot pikam vo chodd malleanchi pikam faideaxirponam gheum ietat.

Adhari piko madda pasun 2.00 meter pois rouncheo. Miriam madda laguim roum ietat.

**Chodd Malleanchi Xeti Pod'dot vo Chodd Khizkot Xeti Pod'dot :-**

Amchea Gõyant hi pod'dot ekdom ieog zaun asa. Chodd malleanchi xeti pod'dot vo Chodd khizkot xeti pod'dot mhollear maddache bhagayantint modem aslolea mekllea zageant , veg-veglle sobhavgunn asleleo 3 vo odhik piko rovop. He pikamchi vadd veg-vegle unchaien

*1 - Madd*
*2 - Miriam*
*3 - Zaifoll / Lovong*
*4 - Kell*
*5 - Onos*

*Chitr - 21 — Ek nomuno - chodd malleanchi xeti pod'dot*

ani rundaien asunk zai ani tech porim tanchea pallamchi vadd veg-veglle kholaien ani rundaien posrunk zai.

Ek nommuno – Miriam maddacher choddovop , don madam moddem kelleo ani on'nsam rovop , 4 maddam modem zaifol rovop (*Polle chitr 21)*

Hea nomunneant on'nsamchi pik samki sokol urtat, ti tal mazli (ground floor), kellichi pik 1 li mazli, miriam-chi pik 2 ri mazli, zaifol-achi pik 3 ri mazli ani soglleavon unch urta to madd 4thi mazli .

Survatek vot mellta tem mukhi pik madd gheta, madd gheun zem vot sokla ieta tem zaifol gheta, ṭea uprant miriam, kell ani sogllea pikamnim ghetlea uprant zomnir rigta tea votacho faido on'nos gheta.

Tech porim hea pikamchea pallancho prosar, eka mekachea pallancher iena ani tanche modem sarem vodun gheunk spordho zaina.

Hi chodd malleanchi pikam pod'dot gheunk gimant xipnnechi bori sovlot asunk zai. Dor eke pikek sifarus kel'lem sarem diunk zai, na tor nal'lachea utponacher vaitt porinnam zaunk xokta.

**Adhari pikancho faido:-**

1) Nal'lache bhagayatint adhari piko ghetlear, odhik ienavoll mellta, rozgarachi sondhi vaddta.
2) Madd roilea uprant, te utpon diunk 8 vorsam ghetat. Hea 8 vorsamchea kallant madda udexim kainch ienavoll mellona punn adhari piko ghetlear hea kallant ienavoll mellta.
3) Bazarant nal'lacho dor vhoir-sokol zait asta ani jedna dor khub sokol ieta, tedna adhari pikamchi ienavoll xetkareak luksonantli vataitta.
4) Adhari piko ghetlear noddnim komi ieta.
5) Zomnint dil'lea udkacho anį sareacho purai vapor zata ani nal'lachem utponui vaddta.

**<u>Adhari pikanche sobhavgunn:-</u>**

Adhari piko rounk venchun kaddtana he sokol dil'le sobhavgunn asunk zai.

1) Teo saule mogache asunk zai.
2) Madda itli lamb vaddunk upkarona.
3) Maddak ani adhari pikek ek sarki pidd/rog lagpachi chodd xokeotai asunk favo na.

4) Adhari pik paddtana maddak kainch tras zaunk favo na.
5) Adhari pikechem orthik jivit madam von chodd asunk favo na.
6) Maddachea ani adhari pikechea pallam modem spordho zaunk upkarna.
7) Adhari piko vechun kaddtana her mud'de lokxant dovrunk zai te mhollear, poixe, kamerim, udok ani ximpnnechi sovlot, matiecho sobhavgunn, xetkareachi goroz ani bazarant magnneom.

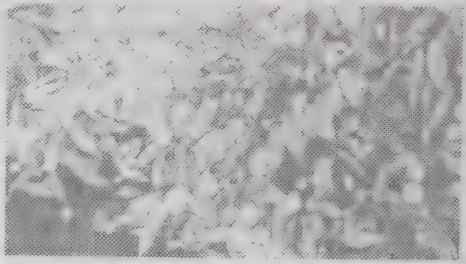
**ADHARI PIKANCHI LAGVODD:**

**ZAIFOLL**

Zaifoll hem ek mhotv aslolem mosalleacho jin'nos .

**Zati:-**

"Konkan Sugandhe" hi ek bori zat, taka bhorpur utpon mellta ani taka boro suadik vas ieta.



*Fotto - 27 — Zaifoll*

**Lagvodd:-**

Zaifollant dadlo (Nor) ani Bail (Mhadi) fulam diupi zhaddam astat. Tech porim khub komi promanan sanyukt (dadlo ani bail donui) fulam diupi zhaddam astat. Fokot bail ani sanyukt zhaddam vorvim follam melltat. Dadlo zhadd paragikarana (Pollination) khatir upeogak ieta. Lagvodd korunk rompio ani kolma (Grafts) vapurtat. Rompio roileo zalear 50 % zhaddam dadlo ani 50 % zhaddam bail zaupachi xokeatai chodd asta. 10 bail zhaddam fattlean, ek dadlo zhadd paragikaram khatir goroz asta. Rompi roun lagvodd kelear utpon diunk 7-8 vorsam lagtat. Lagvoddi khatir sanyukt zhaddachea kolmancho (garfancho) vapor korcho. Kolmantlean utpon vegim mellta ani chodd mellta.

4 maddam modem ek kolom rounchem. Kolom rounk 1 meter rund, 1 mt lamb ani 1 mt khol nem khonnchem. Matient xenn / kompost misoll korun nem bhorun gheunchem ani modekot kolom rounchem.

**Sarem:-**

Bhorpur utpon diunk neman sarem ghalchem. Eka purai vaddlelea zhaddak 500 gram Natr (Nitrogen), 200 gram Sfurad (Phosphorus) ani 1 kil Palash (Pottasium), lagta.
Hea toktteant dil'lem sarim ghalchem.

## *Toktto - 9*

| Voros | 19:19:19 (Gullechem Sarem) | Potash (Murate of Potash) | Urea (Sakrechem Sarem) |
|---|---|---|---|
| 1$^{lea}$ | 100 gram | 50 gram | - |
| 2$^{rea}$ | 200 gram | 100 gram | - |
| 3$^{rea}$ | 400 gram | 200 gram | - |
| 4$^{thea}$ | 600 gram | 400 gram | |
| 5$^{vea}$ vorsa ani tea uprant dor vorsak | 1.3 kilo | 1.250 kilo | 1.250 kilo |

Zaifollachim pallam chodd khol vochonant, haka lagun pallank dukh lagchi nhoi mhonn zhaddachea mula lagim khol khonchem nhoi.

<u>Paddo</u>:- Bori kallji ghetli zalear kolom 3-4 vorsamnim utpon diunk lagta. Ful'lea uprant 6-9 mhoineanim follam zun zatat. Follam hollduvim zaun futtunk lagtat tedna kaddchim. Follant'li bi ani potri veglli korchi. Potri sumar 10-15 dis votak sukounchi ani bi sumar 4-8 satollim sukounchi, bhitorlo moulo allunk lago meren sukounchi.

## <u>Kidd ani Rog:-</u>

### 1) <u>Foll kusop (Fruit rot):</u>-

Ho rog '*Pythopthora*' ani '*Diplodia natalensin*' hea burxi pasun zata. Ho rog lagil'lea follanchi sal kusta.

**Karbhar:**

- Sokol zhoddil'lim sogllim follam ektthaim korchim ani laschim.
- Dor eka mhoineant 1 % Bordo mixronacho favaro marcho.

### 2) <u>Khandi Sukop (Die-Back):</u>

Ho rog "*Diplodia natalensis*' hea burxi pasun zata. Ho rog laglear khande voir thaun sokol sukot vetat.

**Karbhar:**

- Rog lagun sukil'lo khando, 20 cms sokol katorcho. Katorlolea zagear 10 % Bordo lep vo 'Copper-Oxy-Chloride' lep launcho.
- Rog lagil'le soglle khande lasche.
- Dor eka mhoineant 1 % Bordo mixron-acho favaro marcho.

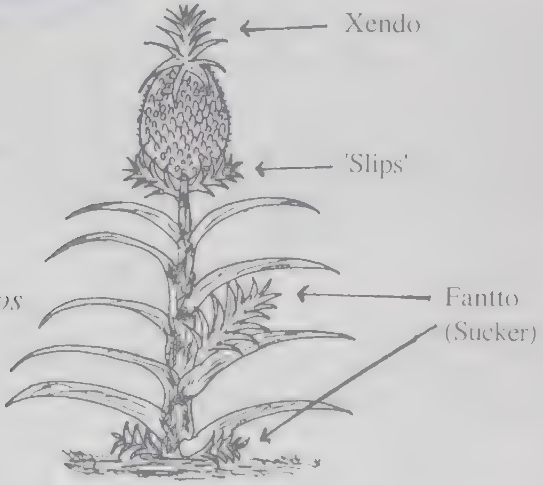
# ONOS

Onos hem ek rosall, godd ani suvadik vasachem foll. Tem vitamin 'A' 'B' ani 'C' hatunt khub girest asam.

**Zati:-** 'Giant Kew', 'Queen', 'Mauritius' ani gaunti zati Goyant roitat.

**Lagvodd**:- Onsache Fantte *('Suckers')*, *'Slips'* ani Xende ('*Crown*') hantutlean onsachim zhaddam toiar korum ietat. Fantte *'Suckers'* he panachea khankeantlean bhair sortat (zomini lagsor) (*polle chitr 22*), *'Slips'* he follachea dhentta lagim bhair sortat. Xende he follachea vhoir ietat. Onsam rounk Fantte *('Suckers')* vo *'Slips'* vapurche. Fantte chodd promannan vapurtat kiteak tankam follam nizachim zatat ani vegin utpon mellta.

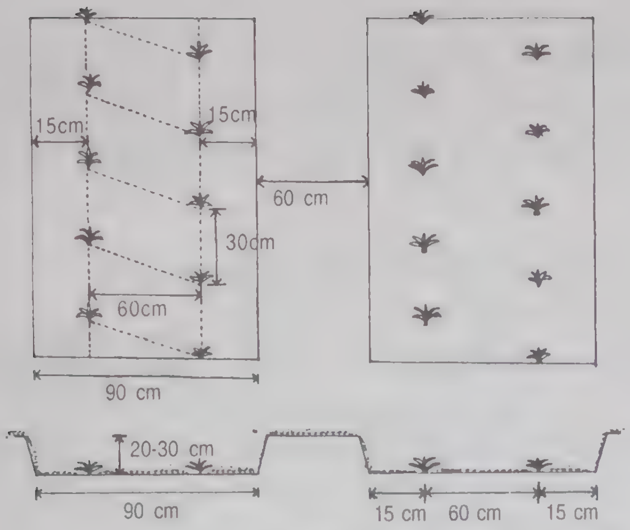
*Chitr - 22 — Onos*




Mod'deom akarache 'Suckers' vo 'Slips' rounk vapurche. Choddui vhodd vo lhan 'Suckers' vo 'Slips' rounk vapurche nhoi. Rounk vinchun kaddil'le 'Suckers' vo 'Slips' raxik ghalun kednanch dovorche nhoi, punn porte korun saulek dovorche.

Rounche adim sokoilea bhagak aslolim thoddim panam kaddchim ani 'Suckers' vo 'Slips' acho sokoilo bhag "Copper-oxy-Chloride" he kiddnaxakant (1 gram, eka liter udkant, hea promannan misoll korun) buddouncho. Oxem kel'lean 'Mull-kusop' (Root rot) ho rog vattaupak zata.

Onsam rounk ek 90 cms (3 foot) rund, 20-30 cms khol ani goroz titli lamb kholli khonchi. Don khollim modem 60 cms (2 foot) ontor dovorchi. Khollient xenn / kompost missol korcho. 'Suckers' vo 'Slips' 2 vollimnim rounche, 2 vollim modem 60 cms ontor dovorchi. 2 onsam modem 30 cms ontor dovorchi (*Polle Chitr 23*) .Onsam palxi pod'dotin (diagonal method) rounchim.




*Chitr -23 — Roupachi pod'dot*

## Sarem:-

Dor eka zhaddak, roita astana 10 gram D.A.P (18:46:0), 5 gram Urea ani 5 gram Pothas (Mutate of Potash) ghalchem. 3 mhoineachi ontor dovrun , dor ek pautti , dor eka zhaddak, 5 gram urea ani 5 gram Pothas sarem ghalchem.

## Kidd ani Rog;-

### 1) 'Mealy bugs':

Heo samkeo lhan kiddio panancho ros chinvtat ani haka lagun panam holduvim zatat. Hi kidd chodd promannan lagli zalear panam kovllun ietat ani uprant suktat. Follacho akar bodolta.

**Karbhar:**

- Onsam roita astanam dor eka 10 choukon meterak (sq.mt) 1 kil Neem pendd misoll korchi.
- 'Dimethoate 30EC' (2ml, eka liter udkant missol korun) hea kiddnaxakant vo 'Methly Parathion (1.4 ml ek liter udkant misoll korun) Suckers' vo '*Slips*' budounchim ani rouchim.

### 2) Xivddi Kusop ( Heart rot):

Ho rog laglear panam holduvim zatat, ani modli xivddi soukas odllear sompeponim bhair ieta. Sokoilim panam kustat ani ghan ieta.

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**Karbhar:**

- '*Tricoderma Viridae*' hi virodhik burshi (Antagonistic fungus) xennant misoll korun zhaddak ghalchem, vo 'Copper-Oxy-Chloride' hem kiddnaxak, (2 gram, eka liter udkant, hea promannan ) , misoll korun favaro marcho.

## KALLIM MIRIAM (Black Pepper)

Miriam hi ek mhotvachi pik zaun asa, ani tacho upeog jevnant khub promannan zata.

Miriamcheo khub zati asat, punn "Panniyur-1" ani "Karimunda" Gõyant khub nanvloukik zal`leo asat. Heo zati vegim lagtat ani gauntti zati von 3-4 pautti odhik utpon ditat.

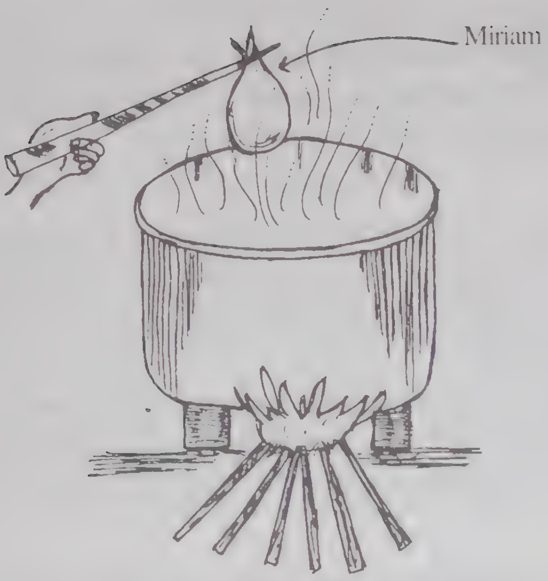
Protek maddar, 2 vallio/mirvelli (pallam aslol'le lhan khande) choddoun lagvodd kortat. Maddachea khandeam thaun 1 mt. pois vollio rouncheo.Votache tras zauche nhoim mhonnun ut'torek, vo ut'tor-purvek (North or North East) rouncheo. Vallio rounk 50 cm lamb, 50 cm rund ani 50 cm khol nem khonchem ani tanunt xenn / kompost missol korun vallio rouncheo.

*Fotto - 28 — Maddacher miriam*

Survatek valio zomnir vaddunk diuncheo ani maddachea kandda (*trunk*) lagim pautoch maddar vhoir choddouncheo. Zoxeo teo maddar choddtat toxeo teo maddar bandun gheuncheo. Vallio 1 mt vaddlea uprant tancheo kombreo katorcheo, oxem kel`lean vallink khande bhorpur ietat. Madd paddunk vhoir vochunk chodd tras zaunche nhoim mhonun vallio 4 meter-am vhoir vochunk diuncheo nhoin. Maddacher vhoir vochun 4 meter nisonnicho upeog korcho.

**Sarem:**

Dor vorsak, 200 gram 19:19:19 ani 100 gram urea ani 180 gram Pothas sarem ghalchem. Sarea vangdda bhorpur xenn/kompost ghalchem. Sarem mulla lagim ghalchem nhoim, punn 30 cm pois ord-vatkullem (semi-circular) allem kaddun ghalchem. Allem chodd khol khonchem nhoim.




*Chitr - 24 — Miriam kallim korpachi rit*

**Paddo ani Prokria:-**

Sadhoron 3 vorsam uprant mirvolik miriam zaunk lagtat. 6-8 vorsam pasun bhorpur pik mellta.

Ghonsantlim 1-2 miriancho rong tambdo zalea uprant ghons kadcho ani miriam mekllim korchim ani 5-8 dis votak sukounchim. Miriam khor kallim (dark black) zaunk, miriam eka lugttak bandchim *(Polle chitr 24* ) ani xizlolea udkant sumar 1 ghoddi buddoun dovorchim.

**Kidd ani Rog:**

1) **"Flea Bettle"**: Hi kidd miriam pokorta ani bhitorlem mas khata ani miriam pokim korta.

**Karbhar:**

- "Dimethoate 30EC" (1.7ml/1 ltr. udkant, hea promanan misoll korun) vo"Endosulphan 35EC" (1.5ml/1 lit udkant ) vo " Monocrotophos 36EC" (1.5ml/1 ltr udkant) kiddnaxakacho favaro marcho.

2) **"Scales":**

Hi kidd panancher bosun tancho ros chinvtat, haka lagun panam koulun ietat ani vallichi vadd chidd`ddun urta.

**Karbhar:**

- Vhoir sangleat te upai gheunche.

3) **"Slow wilt":-**

Ho rog laglear mirvelichim panam holduvim zatat, khande vhoir thaun sokol suktat, ani utpon denvta. Vellar upai ghetlenant zalear val soukas-soukas morta.

**Karbhar:**

- "*Tricoderma viridae*" hi virodhik burshi, xennant misoll korun, mullak ghalchi. "Copper-Oxy-Chloride" hen kiddnaxak, (2 gram eka litre udkant, hea promannan) udkant misoll korun favaro marcho.

**Quick Wilt:-**

Ho miriamcho ek bhirankul rog. Ho rog laglear panam holduvim zatat ani poddtat ani toxech khande moddtat. Mulla lagim val kalli zata, kusta ani ghann vas ieta. Ho rog laglear 15-20 disamnim val morta.

**Karbhar:**

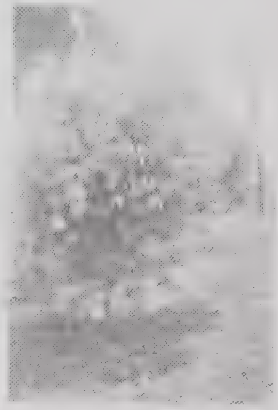
- Sokol poddil`lim panam ani khande ektthaim korche ani lasche.
- Valicher "1% Bordo mixron" favarchem ani toxench 2-3 liter "Bordo mixron" mullak ghalchem.
- Paus suru zaunche poilim ani paus somptokoch "10% Bordo mixron lep" valichea sokoilea bhagak, ½ mt. meren kaddcho.
- Rogache survatek "Metalaxyl MZ 72% WP" hem kiddnaxak (1-3 gram, ek liter udkant, hea promannan) udkant misoll korun favaro marlear hea rogacher vegim niontronn haddum ieta.

## THIKI (Dalchin)

Thiki-chea zhaddachi sal "Thiki" mhonn masaleant vapurtat. Thikichea panam thaun tel kaddtat. Tatunt ' Eujenol' ho ghottok asta.

**Zat:** 'Konkan Tej' hi zat borem utpon dita. He zatichea salint 3.2% telachem promann asta.

**Lagvodd:** Rompi vo gooti kolom roun thikichi lagvodd kortat. 50 cms lamb, 50 cms rund ani 50 cms khol nem khonnchem. Matient xenn / kompost misoll korun nem bhorun gheunchem ani tantunt rompi vo gooti kolom rounchem. Don zhaddan modem 3 mt. ontor dovorchi.



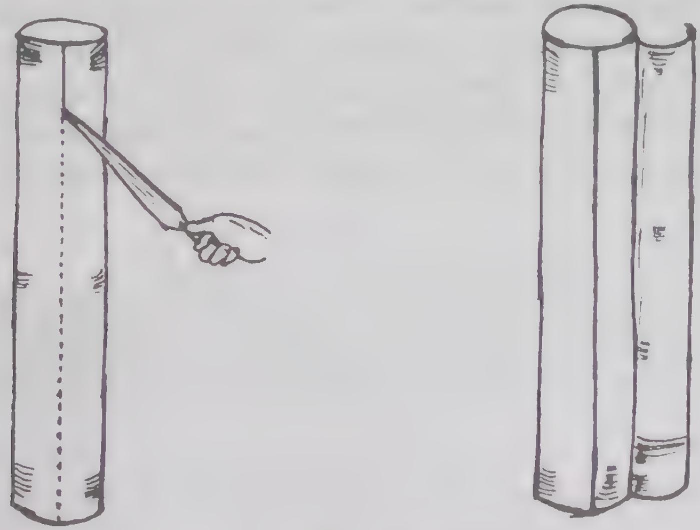
*Fotto -29 — Thiki*

**Sarem:** Poilea vorsak, 10 kilo xenn/kompost-a

vangdda 100 gram 19:19:19 (gul'lechem) sarem ghalchem. Dusrea vorsak 200 gram 19:19:19 sarem, tisrea vorsak 300 gram 19:19:19 sarem, ghalchem, oxem korun dor eka vorsak 100 gram 19:19:19 sarem, 10 vorsam meren vadoit rauchem. Tea uprant dor vorsak 1 kilo 19:19:19 sarem ghalchem. Sarea vangdda bhorpur xenn/compost ghalcho.

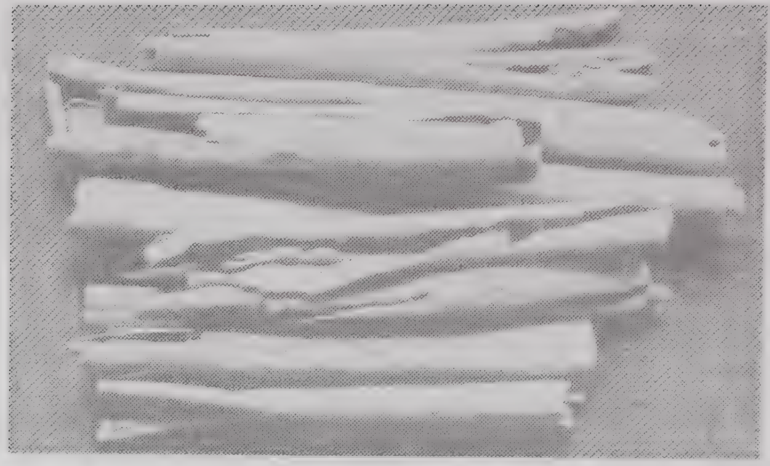
## Thiki Kaddop ani Prokria:-

1) Tisrea vo chouthea vorsa thaun thiki kaddunk mellta.
2) Setembr-Otumbr mhoineant thikichem zhadd, zomni thaun 30 cm (1 foot) unch katorchem.
3) Pachvi-pudi (greenish-brown) rongache khande, sumar hatachea bota itle dhat (sumar 3 cm gherai), vinchun kaddche.
4) Pudi rongache bhag asa to suriechi fattli bhag gheun ghanscho ani nivoll korcho.
5) Pittulcho dhando (rod) vo pitulchem aidon gheun nivoll kel'lea khandeacher ghanschem.
6) Khandeache sumar 30 cm lamb kuddke korche.
7) Suriechea pontan salik lambaien katro ghalcho (*polle chitr 25)*



*Chitr - 25 — Thiki kaddop*

8) Hea katrea-tlean suriechem pont ghalun sal soukas-soukas kaddchi.
9) Sal saulek 5 dis sukhounchi.
10) Sukhoil'li sal, zaka thiki mhonttat, plastik potient vo eka dobeant dampun dovorchi.



*Fotto - 30 — Thiki*

Katorlolea zhaddak portun nove khande ieunk lagtole. Don vorsam uprant portun thiki kaddchi. Dor 2 vorsank ek pautti thiki kaddunk mellta. Je disa khande katortat tech disa sal kaddchi.

Bhirankul oso kidd-rog lagil'lo disona.

## KELL

Kellem hem Gõykaranchem ek avddichem foll zaun asam ani kell hi Gõychi ek mhotvachi foll-pik zaun asa. Kelleant jivansot'vam (vitamins) ani khanij (minerals) khub promanan melltat. Jevlea uprant khub lok kellem neman khatat. Kelleache khub onpodart kortat. Kellichea bonnachi xaki kortat ani kellichim panam gorvank khavodd mhonn vapurtat.

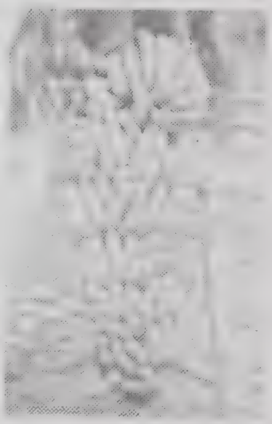
**Zati:**

Gõyant khub torancheo zati roitat, tantleo mhotvacheo teo heo-Saldathi, Rasbali, Gantti Rasbali, Velchi, Savarbondi, Moindoli (Moira), Robusta, Cavendesh, 'Grand naine' adi.

**Lagvodd:**

Kellsumbo (Moko / Nemo) vo 'Tissue Culture' zhaddam vaprun kellichi lagvodd korta.

**Kellsumbo:** Rog-mukt axil'lea kellicho kellsumbo rounk vapurcho, kellsumbeachem mull bore vaddil'lem aschem ani tachi panam oxir aschim. Rund pananche kellsumbe bore vaddonant. Rog vo kidd lagil'lea bhagayat-intle kellsumbe rounk vapurche nhoi.



*Fotto - 31*
*Kellicho ghodd*

**'Tissue Culture':** *Tissue culture* hi ek zhaddam soddsoddit vaddovpachi pod'dot. Hatunt zhaddanche kuddintlea pexeancho (*cells*) punzo kaddtat ani to eke khas xastrio proiogxallent vaddoun tanchim zhaddam toiar kortat.

Eke kellik 3-5 moke diunk 1-1½ voros lagta, punn, *'tissue culture'* hi pod'dot vaprun eka mokeantlean hozaramnin zhaddam thoddea disam bhitor, xastrio proiogxallent toiar kortat. Hea zhaddank mull zatiche soglle gunn astat ani survatek tori him zhaddam roga mekllim astat.

*Tissue culture* kellichim zhaddam lhan plastik zalliechea aidonant vikrek melltat. Tanchi unchai sumar 12 cms asta ani tankam fokot 3-4 lhan panam astat. Him zhaddam khub lhan axil'lean ti survatek zomnint rovop ieog nhoi. Tim poilim 6 x 8 inch plastik potient vo vazant roichim, savllek dovorchim ani tankam neman udok ghalchem. 4 sumana uprant, 1 gram 19:19:19 sarem, eka ltr udkant, hea promannan misoll korun, sumanant ek pautti zhaddak diunchem. 2-3 mhoine potient vaddlea uprant zhaddam zom'nint rounchim.

**Rovop:**

Kell rounk 45 cms (1-½ foot) lamb, rund ani khol nem khonnchem. Don zhaddam modem 2.1 mtr (7 foot) ontor dovorchi. Mottve zaticheo kelli rouncheo aslear 1.8 mtr (6 foot) ontor dovorchi. Matient kompost ani Neem pend misoll korun nem bhorchem ani kell rounchi. Chodd paus ani chodd thondi poddta tea disamnim kell rounchi nhoi.

**Sarem:-**

Kellik vorsak 200 gram Natr (Nitrogen), 100 gram Sfurad (Phosphorus) ani 350 gram Polash (Potasium), he pustik jinnos (Nutrients) lagtat. He pustik jinnos mellunk 950 gram 19:19:19 gullechem sarem ani 300 gram Potash sarem eka zhaddak, eka vorsak vapurchem lagta. Hem sarem 3 bhagamnim vanttun ghalchem. Sarem kellichea sorbhonvtonim allem kaddun ghalchem. Sarem ghatlea uprant allem purounchem.

***Toktto - 10***

| Bhag | Roilea uprant | 19.19.19 Sarem | Pothas (Murate of Potash) |
|---|---|---|---|
| 1 lo | 2 Mhoineanim | 320 gram | 100 fram |
| 2 ro | 4 mhoineanim | 320 gram | 100 gram |
| 3 ro | 6 mhoineanim | 310 gram | 100 gram |

**Kallji**:- Noddnni kaddun bhag nitoll dovorchi, 3-4 disanchi ontor dovrun neman udok diunchem. *"Tissue culture'* zhaddam roileant zalear, roilea uprant thoddea mhoineanim mulla lagsor khub moke (Kellsumbe) ietat. Chodd moke dovrop bore nhoi. Mulla lagsor ietat te moke marche vo kaddche. Kell virlea (ful'lea) uprant 1 vo 2 moke dovorche.
Zoxi kell vaddta toxi taka matti kadun bhor diunchi. Lamb zatichea kellink med laun adar diuncho, na tor teo varean umtun poddunk xoktat. Kellicho nimano fenno bhair sorlea uprant, 8 disamnim bonn katorchem. Chodd vot lagta zalear kellichem voilem pan bhagoun ghoddacher ghalchem. Kellim zunn zalea uprant ghodd rokddoch katorcho.

## KIDD ANI ROG:-

### RONTO (Rhizome Weevil):-

Ho Ronto kellsumbeak (mokeak / nemeank) lagta ani xetkareank khub lukson korta. Survatek ho ronto Bardez talukant roitolea 'Moindoli' he zatik lagtalo, punn atam purai Gõyant ho ronto posorla.
Ho ronto *(polle rongit fotto -1)* zomni lagsor kellichea khandacher ani mokeacher aplim tantim ghalta. Hea tantiantlean bhair sorpi barik kidd (*polle rongit fotto -2)* kandd (khodd) ani moko bhitorlean pokortat. Oxem akramon kel`lean, kellichi modli xivdi sukta, zhadd bhauta, kell virlea zalear, kellim barik zatat ani komi zatat.

### Karbhar:

- Ronto lagil`lea zhaddacho kellsumbo / moko purai khonnun kaddcho ani kiddink marche.
- Ronto lagil'lea bhagayatintle kellsumbe roupak vapurche nhoi.
- Kellsumbo rounchea adim 'Monocrotophos' hem kiddnaxak 2 ml, eka liter udkant, hea promanan misoll korun, tantunt kellsumbe buddounche.
- Tech porim roita astana nemant 10 gram 'Phorate 10G' hem kiddnaxak matient misoll korchem.

### KELL PIXI ZAVOP (Bunchy top):-

Ho kellincho ek bhirankul rog ani Gõychea sogllea bhagamnim posorlolo asa. Rog lagil'lea zhaddachim panam akaran lhan urtat ani ekach zagear goch ektthaim zatat. Zhaddachi vadd zaina ani follam ienant. Kell virpachea

vellar ho rog laglear, ghodd ani kellim barik zatat, tankam bazarant dor mellona.

**Karbhar:**

- Rog lagil'lim zhaddam katrun bhair uddounchim ani laschim.
- Ho rog 'Aphids' hea kiddi pasun eka zhadda thaun dusrea zhaddak posorta. Hea khatir he kiddicher niontronn dovrunk, rog lagil'lim zhaddam katorchim. Katorche poilim, 'Monocrotophos 36 EC' hem kiddnaxak 2 ml, eka liter udkant, hea promannan misoll korun favaro marcho.
- Rog lagil'lea bhagayat-ạntle kellsumbe rounk vapurche nhoi.
- Novem zhadd rounche adim nem bhazun gheunchem ani roita astana matient 10 gram 'Phorate 10G' he kiddnaxak misoll korchem. 'Tissue Culture' zhaddam survatek tori rog mekllim astat, punn uprant tankam rog lagunk xokta.

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## LOVONG

Lovong hi ek mhotvachi masaleachi pik. Gõykaranchea kuznant tacho khub vapor zata.

**Lagvodd:**

Lovong maddam modem mixr pik koxi rounk ek ieog pik zaun asa. 4 maddam modem ek lovong rounchem. 2 vorsam vaddil'li rompi rounk vapurchi. Rounk 60 cm (2 foot) lamb, 60 cm rund ani 60 cm khol akarachem nem khonchem. Xenn / kompost misoll korun nem bhorchem ani modekot rompi rounchi.

**Sarem:**

Dor eka vaddil'lea zhaddak 300 gram Natr, 250 gram Sfurad ani 750 gram Polash sarem sifarus kel'lem asa. Hem sifarus kel'lem sarem mellunk 1.5 kilo 19:19:19 sarem ani 750 gram Potash vapurchem. Sarea vangdda bhorpur xendria sarem ghalchem.

**Paddo:**

Bori kallji ghetli zalear lovong 6 vorsamnim fulunk suru zata ani sumar 20 vorsamnim, zhaddachea utpon diupachea takot-i itlem utpon mellunk lagta. Donparchem vot melltat te khande bhorpur utpon ditat. Fulamche kolle (flower buds) gulabi rongache zalea uprant te hatamnim

kaddche. Kolle fulunk dile zalear, te purai fultat ani follam zatat. Fulam ani follam masaleak upkaronant. Follam zamblam sarkim distat fokot fulache kolle (zaka lovong mhontat) tech masaleak upkartat. Kolle kaddtana khande moddche nhoim. Kolle kaddunk *platform* nisonnicho vapor korcho.

Kaddil'le kolle pudi rongache zai meren, 4-5 dis vottak sukounche.

## ALL SPICE

Hea zhaddak miriam akarachim, ghonsamnim follam zatat. Him follam sukoitat ani tanchem pitt korun masaleak vapurtat. Hea pittak thiki, zaifol, lovong ani miriamcho suad ani vas ektthaim ieta, mhonnun hea zhaddak "All Spice" he nanvan vollkhotat. Hea zhaddachim panam-i vapurtat.

Sumar 6 mhoineachi rompi rounk vapurchi. Rompi rounk 60 cm (2 foot) lamb, rund ani khol nem' khonnchem. Xenn / kompost matient misoll korun nem bhorchem ani rompi rounchi.

7-10 vorsamnim utpon diunk lagta. Purai zun zal'lim hirvim follam kaddun votak sukouchim ani pitt korchem.

*Fotto - 32 — All Spice*

# XI
# Kiddicho Karbhar

Maddak khub torancheo kiddi akramon kortat. Hantleo chodd mhotvacheo kiddi zaun asat, Bhonvor, Rontto, ani Mait, ani unnea mhotvacheo zaun asat teo Vallti, ani Chuddteo khaupi kidd. Heo kiddi maddachea veg-vegllea jivit-kallant lagtat. Hea bhair maddak undir-ui khub promannan luksonn kortat. Favo tea vellar favo te upai ghetle zalear amchean kiddincher niantronn dovrum ieta.

**BHONVOR (GHUNGUṄL'LO)** (Rhinoceros Bettle – *Oryctes rhinoceros*)

Hi maddachi ek bhirankul kidd zaun asa. Ho kallea rongacho bhonvor akaran modheom asta ani tachea tokler ek xing asta *(polle fotto 33 ani rongit fotto -3)*. Dadlo / nor bhonvorak hem xing vhodd asta ani bail/ mhadi bhonvorak xing lhan asta.

*Fotto - 33 — Bhonvor ani tacho pilo*

**Lokxonnam:-**

- Ho bhonvor maddachi xivddi pokrun khata ani chabodd (bhuso) bhair uddoita. *(Polle rongit fotto 4)*
- Xivddi chodd promannan pokorli zalear xivddi bhagta vo moddta.
- Komi promannan laglear xivddi sutt'toch chudtteo katren kotorlea porim dista *(Polle rongit fotto -5)*
- Bhonvor-achem akramon odhik promannan aslear madd morunk xokta.

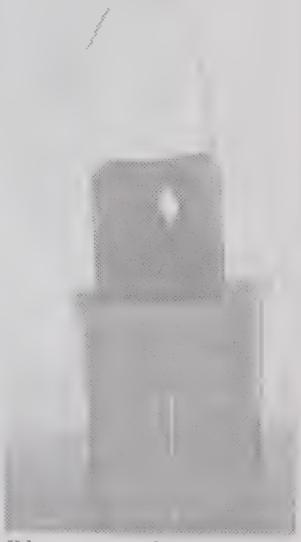
- Kaim pavtti ho bhonvor chuddtanche kuxik ieupi poi khata, ani nal'l ieupache vattaita.

**Karbhar:-**Bhonvor-acher niontron haddpak he sokoile upai gheunche. Pontar goro asloli sori vo saikolecho rai, (*Polle rongit fotto 6 ani 7*) xivdichea burakant ghalun bhonvor bhair kaddcho ani marcho, uprant renvent (kos), 'Endosulphan 4%' pitto ani 'Mancozeb 75% WP' (3 gram) pitto him kiddnaxakam misoll korun burak bhorcho.

**Nivarak upai:**

Bhonvor maddak lagcho nhoim mhonnun he sokoile nivarak upai vapurche.

- Maddachea kovllant, unchlim 3-4 chuddtamchea khankeant renv (kos) ani 'Endosulphan 4% pitto' hem kiddnaxak misoll korun dovorchem vo 10 gram kanfracheo (damracheo) gullio dovorcheo. Hanchea vasan bhonvor pois rauta. He upchar dor 2 mhoineamnim ek pautti tori korche, vo
- 'Phorate 10G' hem kiddnaxak, 4 gram eke lhan plastik pisvent ghalun maddachea kovlant dovorchem. Pisvek barik burak korche.
- 1 kilo Erand (castor) pend, 1 liter pejechea nisant (nivoll) misol korun, ek ratik kusonk ghalcho ani lhan buddkuleant ghalun bhagayatint dovorcho. Budkulo matient ord purcho. Bhonvor lagim aslear te akarxit zatle, tankam dhorche ani marche.
- Bhonvor-ak akarxit korunk 'Pheromone' sampllo (rater) vapurcho. Ho sampllo *(Polle fotto 34)* mhollear ek baldi (18 liter) tantunt 'Pheromone' hainsachi pisvi asta. Ho samplo 3-4 meter unchaiecher bagayatint lamboun dovorcho. He 'Pheromone' hainsachea vas-ak bhonvor akarxit zatat ani baldent poddtat, tankam ekthaim korche ani marche. Dor 2-3 mhoineant, hainsachi pisvi bodolchi, bhonvor poddpache komi zai meren. 1-2 hecter xetrak ek sampllo dovorcho.
- Bhonvor kuslolea xendria podartant tantim ghalta ani apli sonkea vaddoita. Khubxe



*Fotto - 34 — Bhonvoracho sampllo*

pautti amkam kuxil'lea xendria podartant vo xen'nache ghairint 'C' akarache *(Polle fotto 33)* kidde distat. He kidde zaun asat bhonvorache pile. He pileank uprant pakam futt'tat, te udd'tat ani maddacher akramon kortat. He khatir melolea maddachem mull, maddachem kandd ani osle ier kuspache jinos aslear kaddun bhagayat nivoll dovorchi. Tech porim xen'nache ghairient, bhonvor-achim tantiam ani pille marunk, ghairint, 'Lindane pitto' vo 'Endosulphan 4%' pitto , vo 'Carbaryl 50WP' (0.01%) him kiddnaxakam ghairint vapurchim.

- Jivik niantron:- "*Baculovirus of Oryctes*" ani "*Metathizium anisoplial*" he don 'Pāthogen' (bursi) vapurlear Bhonvor-acher niantron zata. Hi bursi Bhonvor-achea kiddienk rog toiar korta ani tankam marta.

**RONTTO (SONDDEO GHUNGUL'LO)**:- (Red palm weevil – *Rhynchophorous ferruginues*)

Rontto choddso 4-20 vorsanchea maddak lagil'lo dista. Rontteacho ghungul'lo tambsar rongacho asta, tachi sond / tond lamb asta ani tachea angar fuddlea bhagak thodde kalle tipke distat *(Polle rongit fotto 8)*.

**Lokxonnam:-**

- Ho rontteacho ghungul'lo maddachea kanddacher (khodacher) aplim tantim ghalta, ani tantiant'lean zolm gheupi rontte ( *polle rongit fotto 9* ) maddak burak kortat ani bhitor vochun bhitorlo mov bhag khatat/pokortat.
- Rontto laglea uprant khub disamnim maddachi xivddi sukunk lagta, maddachea khandant'lean, tamsar dhink ani barik bhuso/pitto bhair soril'lo dista. Rontto kovllant laglo zalear, kovoll add poddta.
- Rontto lagil'lea maddachea khandak kan lavun aikolear (ratchea velar), bhitor rontte khatat to kuru-kuru avaz aikunk ieta.

Vellar upai ghetlena zalear madd morta.

**Karbhar:**

- Maddak koslich zokhmi zaunk diunchi nhoim, khampam bhi marchim nhoim, karann he zokhmecher Ronto aplim

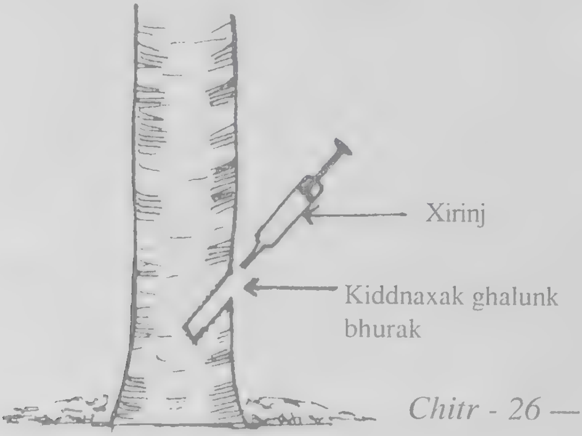
tantim ghalta. Zokhmi zalich zalear damor ani 'Carbaryl 50WP' hem kiddnaxak misoll korun lep kadcho.

- Ronteacher niontron hadunk 'Dichlorovos 76% EC' vo 'Carbaryl 50 WP' hem kiddnaxak pallant'lean maddak diunchem.

**Pallant'lean kiddnaxak koxe divop:-** Eke lhan plastik pixvent 10 ml kiddnaxak, 10 ml udkant misoll korun ghalchem. Mulla lagsor zomin khonnun ek borem, novem, holldusar rongachem pall vinchun kadchem. Pallachem tonk suriem vo 'blade'-in katorchem ani hem pall kiddnaxakache pixvent ghalchem ani voir ghot bandchem (*Polle rongit fotto 10)* Hem kiddnaxak madd soukas chinvun ghetlo.

Pallant'lean kiddnaxak diunk xokeo na tor maddak injesanv korun hem kiddnaxak diunchem.

**Injesanv koxem korop:-**Maddak drill gheun 1-2 pallxe burak korche. Eka aidonant (Kopant) 10ml kiddnaxak ani 10ml udok misoll korchem. Vhodlea xirinj-ant hem misoll kel`lem kiddnaxak gheun burkant`lean soukas-soukas maddant ghalchem.(*Polle chitr 26 ani rongit fotto - 11).* He kiddnaxak maddachea angant firtolem ani bhitor axil'lea




*Chitr - 26 — Kanddak injesanv*

rontteachea kiddink martolem. Injesanv kelea uprant menn vo domor vo mati ani 'Copper-oxy-chloride' misoll korun burak purounche.

Upchar korunuim madd samballunk zaunk na zalear to madd kaddcho ani lascho, karan te maddant ronteachim tantim ani pilam astat tim vaddtolim ani dusrea borea maddank ho ronto posortolo.

*Rongit Fotto 1,. Kellicho rontto*

*R.F. 2, Rontteachi Kidd/pilo*

*R.F. 3, Bail Bhonvor ani Dadlo Bhonvor*

*R.F. 4, Bhonvoran pokorloli xivddi*

*R.F. 5, Bhonvoran akramonn kel'leo chuddteo*

*R.F. 6, Gori ghalun bhair kadil'lo Bhonvor*

*R.F. 7, Bhonvor kaddunk gori*

*R.F. 8, Rontto (Sonddeo Ghungul'lo)*

*R.F. 9, Rontto ani tachim tantim ani Kidde (Pile)*

*R.F. 10, Pallant'lean kiddnaxak divop*

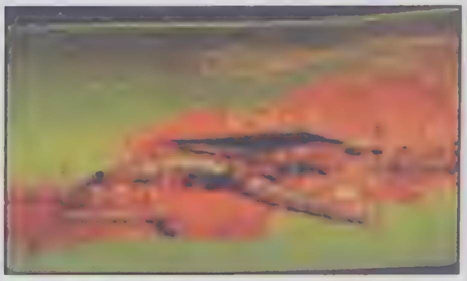
*R.F. 11, Kandd-ak injesanv*

*R.F. 12, Rontteacho sampllo*

R.F. 13, Mait

R.F. 14, Mait-an akromonn kel'lo trikon bhag

R.F. 15, Mait-an akromonn kel'lo nal'l



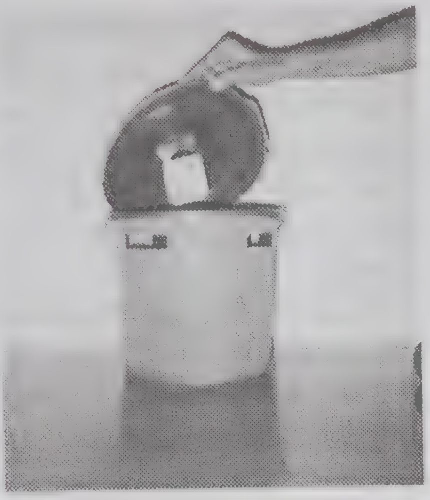
R.F. 16, Chuddteo khaupi kidd

R.F. 17, Chuddteo khaupi kiddin akramonn kel'le ,add

**Nivarak upai:**

Rontto lagcho nhoim mhonn he sokoile nivarak upai gheunche-

- Rontteachi sonkea chodd axil'lea bhagamnim, maddachea kanddak koslich iontrik zokhmi zaunk diuchi nhoim, maddar vhoir choddunk khampam marchim nhoim. Zokhmi zalolea bhagacher rontto aplim tantim ghalta. Maddak zokhmi/ghai zal'le asat zalear te patoll damor ani 'Carbaryl' hem kiddnaxak misoll korun lep kaddcho.
- Maddachim pachvi chuddtam katorchim aslear tim kovla pasun 1.20 meter pois katorchim.
- 'Pheromone' sampllo vapurcho. Ho 'Pheromone' sampllo mhonnllear – ek baldi (5 liter-anchi), zaka dampnem asta. He baldek, 5cm x 5cm, akarache burak (zonelam) korche. Ani burak ukte dovrun, sakacho kopddo purai baldek chittkauncho.



*Fotto - 35 — Rontteacho samplo*

'Pheromone' hainsachi pixvi eke sorek bhandun baldechea dhankneat'lean baldent lambouchi. *(polle fotto 35)* Baldent tollak tornnea pid'deache kudke ani 'Carbaryl 50WP' hem kiddnaxak, 2 gram 1 liter udkant misoll korun ghalchem. Sampllo sumar 1 $^1/_2$ meter unchaiecher maddak ghot bandcho. *(polle rongit fotto 12)* Sampllo saulek dovorcho. Bhagayatint axil'le rontte baldent aslolea hainsak akarxit zatat ani baldent poddtat, ani mortat, te kadche ani bhair oddounche. Dor 7-15 disamnim pidd'deache kuddke ani kiddnaxak bodolchem. Tech porim hainsachi pixvi 3 mhoineant ekdam bodolchi. Je bagayatint 20 vorsam sokol piraieche madd asat te bagayatint sampllo vapurcho nhoim, karann, he rontte samplleant axil'lea hainsak akarxit zatat, ani te samplleant poddonastana lhan maddacher akramon korpachi xokeotai asa. Samplleant rontte chodd prommanan poddtat zalear tea bagayatint 1 kilometer gheraiacher rontteanchem akramon asam mhonn somzunchem ani rontte lagil'le madd sodun kaddche ani favo te

upchar korche. He samplle sorvbhonvtonnichea sogllea xetkareanim dovorlear boro faido mellunk xokta.

- Sumar 50 cms. lamb tornnea maddache khorea (ubhe fodlole) gheunche, ani 'Yeast', vinagr ('acetic acid') ani taji sur (2.5 liters sur + 5 ml. vinagr + 5 gram yeast) misoll korun koreacher ghalchi. Eka matiechea aidonant ghalun dovorchem. Eka hectarak 75 aidonam dovorchim. He amtail'le surek rontte akarxit zatat, te ektthaim korche ani marche.

**MAIT:-** (Eriophid mite – *Aceria guerreronis*)

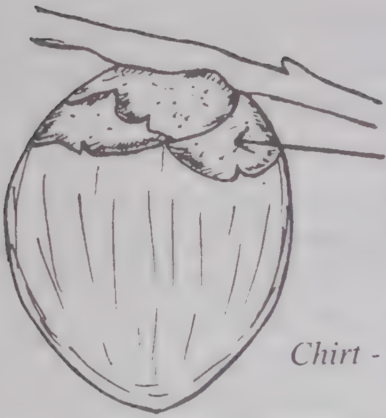
Mait hi nal`lachi ek bhirankull kidd. Hi kidd 1998 vorsa Kerala rajeant Ernakulam jhil'leant poili nodrek aili. Uprant hi nal`lachi nash korpi kiddecho produrbhau Tamilnadu, Karnataka, Pondicherry, Andhra Pradesh, ani Gõyant dispak laglo. Khorem mhollear, he kiddi vorim zaupachem luskon Gõyant khub vorsam adim disun ail'lem, pun luskonn usko kaddpa sarkhem naslem, ani utpadokank fokot kirkol orthik luskon zatalem. Punn halinchea vorsamnim utpadokank he kiddin huskeant ghatleat.

Mait hi kidd samki lhan ani soimbik dolleamnim ti disona. Tika polleunk 'Microscope' iontronacho adar gheuncho lagta. Ticho akar barik gaindoll vo dont-a sarkho barik ani lamb asta. Sorvsadharan eke vaddil'lea mait-achi lambai 250 'microns' (Sumar eka millimeter acho choutho vantto) ani rundai sumar 40 "microns' asta . Angar gaindola sarkhim ring-am astat ani tokle vatten 4 paiem astat ani sui-e sarkhe dant. (*Polle rongit fotto 13 )* Tanchi loksonkea komi kalla bhitor khub vaddta.

Ek bhail (mhadi) kidd, sorvsadaran 150-200 tantim ghalta. Ek kidd fokot 7-10 dis jogunk xokta. Heo kidd-ieo ek maddar thaun dusrea maddar, eka bhagayatint ṭhaun dusrea bhagayatint, varea vorvim ani tech porim mus, undir, xil'li, chani, xevnnim ani her dusrea kidde vorvim (tanchea angak chitkun) posortat. Mait lagil'lim addsoram eke koddlean thaun dusre kodden velim zạlear tea zageamnim addsoram vorvim hi kidd posorta.

**Lokxonnam:-**Mait he kidd 1-3 mhoineachea bonddeank lagta ani laglea uprant 9 mhoine poriant nal`lacher zogta.

Khub kiddio nal`lachea chamfeachea (dentachea) pondak vochun rautat ani thoim aple sui-e sarkhe dant ghalun mov bhagacho ros chokun ghetat. *(Polle chitr 27).*




*Chirt - 27 — Chamfem*

- Zoso-zoso bonddo vaddta, toso-toso kidd-ien akromonn (hol'lo) kel'lo bhag chamfea-ntlean bhair sorta ani dhovo vo holldovsar rongacho trikon akaracho bhag dista.
- Ho trikon bhag kidden akramonn kelea uprant 1 mhoinean dista. *(Polle rongit fotto - 14).*
- Ani zoso bonddo vaddta toso ho bhag hollduvo zata ani akramon kel'lea zageamnim lamb xiro poddloleo distat. *(Polle rongit fotto 15).*

Haka lagun.......
- Nal'l vaddona ani barikuch urta.
- Nal'lachea khobreacho dorzo ani promann denvta.
- Son'nachi ani katheachi vadd borabor zaina.
- Nal'l zun zalea uprant sonn ghott zata, oulunn ieta ani nal'l solunk tras zatat.
- Oslea nal'lank bazarant kimmot mellona.

**<u>Karbhar:-</u>**

Nisorgant khub upeogik kiddio asat, khub xeo heo kiddio mait-acheo nisorgik dusman, mhonnge teo mait kiddik khatat ani tanche sonkeacher tabo dovortat ani oxe toren orthik luskon komi kortat. Aiz mait-ache he nisorgik dusman bhagayatint komi zaleat, ani nal'lacher mait-acho produrbhav vaddunk hem ek mukhel karonn zaum ieta.

Hi mait bonddeachea chamfea ponda ravun surokxitponnan hol'lo korta, ani haka lagun tancher niontron dovorop ek avgodd kam'.

'Endosulphan 35EC' (3ml eka liter udkant hea promannan misoll korun), Dicofol (5.5 ml eka liter udkant) ani "Carbosulphan" (2 ml eka

liter udkant), him rasainik kiddnaxakam mait-acher niontronn haddunk sifarus kel`lim asat.Punn torui astana, nisorgant asloleo nisorgik upeogik kiddio samballpak, rasainik kiddnaxakancho vapor korop ieog nhoi. Tor mait-acher niontronn haddunk nisorgik kiddnaxakancho upeog korcho. Sokol dil'le upai gheum ietat.

(1)'Azadiractin':- '0.004% Azadiractin', 4 ml eka liter udkant, he promannan misoll korun, favaro marcho. Favaro (spray) martana bhonddeachea chamfeacher kiddnaxak poddta hachi kallji gheunchi. Favaro marunk 'rocking sprayer' vaprum ieta, vo lhan (1 liter) spray pump gheun maddachea kovllant vochun bondeamcher favaro marcho.

Produrbhav zal'le soglle madd zata titlea komi kalla modem favarche. 4 mhoineank ek pautti favarni korchi. Favaro, paragikaronn (pollination) zaunk na te bondeanchea pennddicher marcho nhoim.

**(2)** 'Neemazol 5%':- 'Neemazol 5%' (7.5ml Neemazol + 7.5 ml udok misoll korun) pallant`lean diunchem.

**(3)** Neem tel, losun ani shabu misron:-

Neem tel, losun ani shabu misoll korun toiar kel'lem hem nisargik kiddnaxak.

1 liter misron toiar korunk . ½ liter udkant 5 gram shabu pitto ani 20 ml neem tel khiroun misoll korchem. Tel misoll zaunk bhorpur khirounchem poddta. Dusrea eka aidonant ½ liter udkant 20 gram losun borem vattun misoll korchem. Hem ½ liter losun misron kopddeacher ghallchem ani ½ liter neem-tel misron-ant misoll korchem. Hem 1 liter misron bhorpur khirounchem ani tech disa bonddeacher favarchem.

**(4)** 'Hirsutella thompsonni' :- *'Hirsutella thompsonni'* ek jivxastrik kiddnaxak . *'Hirsutella thompsonni'* ho ek jiv. Ho jiv pitteant misoll korun, 'pack' kel'lo asta. Ho pitto mait-acher poddlea uprant Maitant rog toiar zata ani Mait morta. *'Hirsutella thompsonni'* bazarant 'Bio-catch' ani 'Mycohit' hea vevsaik nanvan mellta. 5 gram 'Bio-catch' eka liter udkant hea promannan, misoll korun bhorpur khirounchem ani kopddear ghallchem, uprant hatunk 3 ml 'Azadiractin' hem neem kiddnaxak bhorpur khiroun misoll korchem ani bonddeacher ani purai penddicher favarchem.

Vhoir sangleat te upchar korche korun odhik mhotvachem mhollear, maddachi bholaiki ani pustik jinnosachem sthan sudraupachem. Hem korunk sifarus kel'lem sarem maddak neman diunche diun, dor eka

maddak dor vorsak 5 kilo koddu neem pendd ani zinc, boron, molybdenum, copper oslim pustik jinnos aslolem sarem (200 gram) diunchim. Maddak neman udok diunchem. Oxem kel'lean maddache kiddik pois dovorpachi protikar xokti vaddta.

**CHUDDTEO KHAUPI KIDD** *(Opisina arenosella)* :-

He kiddichi tokli kalli asta ani tichem ang tamsar-pudi rongachem asta (*Polle rongit fotto 16)*

**Lokxonnam:-**

- Hi kidd chuddteanchea pondak raun chuddteancho pachvo bhag khorvoddta.
- Kiddin akramonn kel'leo chuddteo/chuddtam survatek laslea sarkhim distat ani kai disamnim fokot viruch distat. *(Polle rongit fotto 17)*
- Gimmant hi kidd chodd promannan lagil'li dista ani pausachea kallant tanchi sonkea denvta.

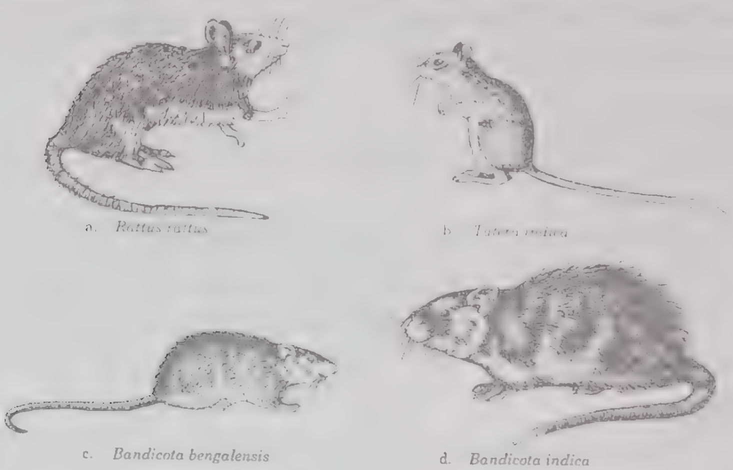
**Karbhar:-**

- Kiddin chodd akramon kel'lim chuddtam katorchim ani kiddie soit laschim.
- Jivik niantron- Jivik niantron pod'dot vapurlear boro porinnam mellta. Kiddicho produrbhav zal'lea bagayatint porjivi ganjil – *Goniozus nephantidis, Elasmus nephantidis, ani Brachymeria nosatai* sodche. He porjivi ganjil aplim tantim kiddichea angacher ghaltat ani aplem jivit-chokr purnn kortat, ani oxe toren kiddio mortat ani tanchi sonkea denvta.
- Kiddicho produrbhav khub chodd asa zalear 'DDVP – 76 EC' hem kiddnaxok (5 ml), vo 'Endosulphan 35EC' hem kiddnaxak (15 ml), 10 lit udkant misoll korun chuddtanchea pondache vatten favarchem.
- Kiddnaxak favarlea uprant 3 sumanamnim porjivi ganjil bagayatint sodche. He porjivi ganjil proiogxallent vaddoitat. Osli ek Gõy sorkarchi proiogxala, Ela Farm, Pornnea Gõyant asa.
- Tech porim 10ml 'Monocrotophos 36%EC', 10ml udkant misoll korun pallant'lean vo injesanv korun maddak dium ieta.

## UNDIR:-

**Lokxonnam:**

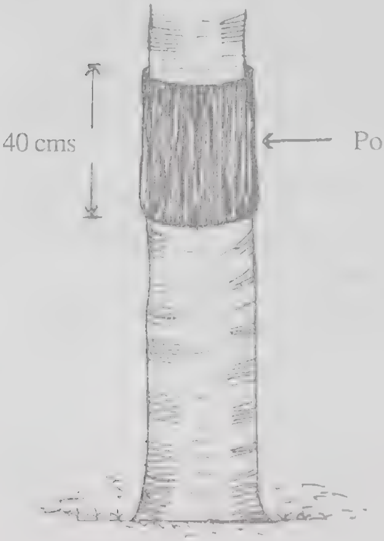
- Undir maddak khub luskon korta.
- Undir addsorank burak korta *(Polle fotto 33)* ani tim 2-6 disam uprant sokla poddtat. Oxe torem utpon denvta.




*Chitr -28 — Undir ani tanchim xastria nanvam*

**Karbhar: -**

1) Kovate roita astana sifarus kel'li ontor dovorchi. Kovate chodd datt roilear undrank maddacher bhonvunk sompem zata.
2) Sumar 2 mt unch, maddachea kanddak, 40 cms rund G.I. potro sorvbhonvtonnim launcho *(Polle chitr 29)*




*Chitr - 29 — Maddar potro launcho*

3) Undrachem vikh "Bromodiolone 0.0005%" (10 gram) maddachea kovllant dovorchem. Dor 5 maddam fattlean eka maddacher dovorchem. Boro porinam mellpak 12 disamnim ek pautti vikh dovorchem. "Zinc phosphide" hem-i vikh dovrum ieta.
4) Bhagayatint undranchi gholl (bill) aslear tantunt dunvor soddum fugar korun marche.

*Fotto - 33 — Undran burak kel'lem addsor*

5) Rater (sampllo) manddun dovrun undrank dhorche ani marche.
6) Nal'l paddta astana, kovol nivoll korcho. Undrache ghontter aslear kaddche.

**VAITI (Dhovio muio): -**

Vaiti, porsant kirlunk ghatlolea nal'lancher akromonn korta, nal'lanchem sonn khata.

**Karbhar:**

- Porsant kirlunk ghatlole nal'lancher nhoim-cho kos / renv ghalcho.
- Fokot purai kuxil'lem xenn / kompost vapurchem.
- Vaiti pois dovrunk dor ek choukon meter-ak (Square meter), 100 gram koddu neem-achi pendd, vo 10 gram "Phorate 10G" hem kiddnaxak matient misoll korchem, vo "Chloropyriphos 20 EC" hem kiddnaxak, ( 4 ml, eka liter udkant, hea promannan) udkant misoll korun, zomin bhizounchi.

- Vaiti maddacher vhoir choddta zalear ti kaddun madd nivoll korcho ani uprant “Chloropyriphos 20 EC” hem kiddnaxak, ( 4 ml, eka liter udkant, hea promannan) udkant misoll korun, maddacher favarchem / vo rokounchem.
- Vaitecheo roineo bhagayatint asa zalear sodun kaddcheo ani tantunt “Chloropyriphos 20 EC” hem kiddnaxak, ( 4-5 ml, eka liter udkant, hea promannan) udkant misoll korun, rokounchem.

# XII
# Rogacho Kharbhar

maddak rog lagun khub luskon zata. Suel, Madd-vhanvop ani 'Ganoderma' he rog chodd promannan Gõyant lagil'le distat.

**SUEL:-**

Ho rog *"Phytophtora Palmivora"* hea nanvamchea bursi pasun zata. Ho rog pausachea kallant jedna, tapman komi asta ani chodd asta, tedna chodd promannan lagta.

**Lokxonnam:-**

Choddxea xetkareank hea rogachim lokxonam Otumr mhoineant distat.

- Rog lagil'lea maddachi xivddi poili pivlli zata ani uprant add poddta ani lomkouta.

*Fotto - 37 — Suel*

- Maddachea kovllant ghann ieta.
- Xivddi hatan oddlear sompeponni bhair ieta.
- Lhan maddank ho rog chodd promannan lagta.
  Survatek favo te upchar kelenant zalear madd morta.

**Karbhar:-**

- Xivddecho kuslolo sogllo bhag katrun nivoll korcho.
- Katrun kaddil'lo kuslolo bhag kovllant vo maddachea mullant sanddcho nhoi, punn to pois vhorun purcho vo lascho. Thoinch sanddlear, hea kuslolea bhagant aslolea rogachi bursi dusrea nirogi maddank lagunk xokta.
- Katrun nivoll kel'lea zagear "Copper-oxy-chloride" hem kiddnaxak (25 gram, eka liter udkant, hea promannan misoll korun) lep kaddcho

vo "10% Bordo mixron"-acho lep kaddacho( Bordo mixron toiar korpachi pod'dot sokol dil'li asa). Pausan kiddnaxak dhuvun vechem nhoi mhonnun plastik pisvent vo dhobeant dhampun gheunchem.

- Xivddi zor chodd bhitor kuslea ani madd vanchpachi xokeotai na zalear to madd katorcho ani kuslolo bhag lascho, kiteak oslea rog lagil'lea maddachi bursi dusrea nirogi maddank lagunk xokta.

**Nivarak upai:**

Nirogi maddank rog posorcho nhoi mhonn he sokoile upai gheunche.

a) Sorbhonvtonniche madd, "Copper-Oxy- Chloride" hem kiddnaxak (2 gram eka liter udkant, he promannan misoll korun) vo "1% Bordo mixron" favorchem. (1 % Bordo mixron toiar korpachi pod'dot sokol dil'li asa).

b) Jea bhagayatint dor vorsak Suel lagta thoim "Copper-Oxy-Chloride" (2 gram eka liter udkant, hea promannan) vo "1 % Bordo mixron" maddacher favarchem.

- Favarni, pausachea poilim, mhonnge Mai mhoineant ani portun ekdam paus somptoch Otubmr mhoineant korchi.
- Favarni korunk zaina zalear "Copper-oxy-Chloride"(2 gram , 1 liter udkant misoll korun) kovllant votchem/rokouchem.
- Toxench, paus suru zaunchea adim "Indofil M-45" hem kiddnaxak 2-3 gram, eka lhan plastik pisvent (pisvek thodde barik burak korche) ghalun, maddachea kovllant unchlea 2-3 chuddtanchea khankeant dovorchem.

Maddak bhonvor lagcho nhoi mhonn favo te nivarak upai gheunche ani laglo zallear favo te upkar vellar korche. Bhonvoran maddache xivddek kel'le zokmintlean suel rogachi bursi bhitor veta ani maddak suel rog lagunk sompem zata.

**"1 % Bordo mixron" toiar korpachi pod'dot:-**

Eka aidonant (Plastik-chem, ximtachem , matiechem vo tambeachem aidon gheum ieta) 1 kil "Copper Sulphate" pitto, 50 liter udkant khiroucho (Copper sulphate mixron). Dusrea eka aidonant 1 kilo chuno, 50 liter udkant khirouncho (Chuneachem mixron). Uprant, copper sulphate mixron, chuneachea mixron-ant souka rokhouchem ani teach borobor khirounchem. Ek suri mixronant buddoun pollouchem, suri tambsar rongachi zali zalear, odhik chuno ghalcho ani khirouncho suriecher tambsar rongache dhag ieupache bond zaisor.

**"10 % Bordo mixron"-acho lep toiar korpachi pod'dot:-**

Vhoir sanglea tich pod'dot vapurpachi, punn fokot Copper sulphate mixron toiar korunk 100 gram 'Copper sulphate' ½ liter udkant khiroupacho ani chuno mixron toiar korunk 100 gram chuno ½ liter udkant khiroupacho.

## MADD – VHANVOP (MUDOLL):

Ho rog *Thieloviopsis paradoxa* hea burxi pasun zata.

**Lokxonnam:-**

- Rog laglolea maddachea kanddantlean patoll tambsar puddi rongacho dhink vhanvil'lo dista, sukhlea uprant ho dhink kallo zata.
- Ho rog uprant souka-souka vhoir vochot rauta *(Polle rongit fotto - 18).*
- Kallea zal'lea bhagachea pondak tambsar zata ani kusta.
- Sokoilim chuddtam hollduvim zatat, sokol lambtat, ani suktat.
- Bondde sokol poddtat.

Jea zageanim zomnichea udkachi patli (ground water level) unch asta, udok sattoun urta ani zomnint chodd ambotsan aslear ho rog Julai te Novembr mhoineant vegin posorta. Favo te upai vellar ghetlena zalear madd kaim vorsamnim morta.

**Karbhar:-**

1) Rog lagil'lo bhag koiten katrun kaddcho ani nivoll korcho. Nivoll kel'lea zagear "Tridemorph 5%" (Calixin) (5ml calixin, 100 ml udkant) vo "Copper-oxy-chloride" (5 gram , 100 ml udkant) misoll korun lep kadcho *(Polle rongit fotto -19).* Kiddnaxakacho lep kaddlea uprant 1-2 disamnim pattol damor gorom korun lep kaddcho.
   Rog chodd promannan lagla zalear 'Tridemorph 5 %' vorsak 3 pautti (Abril-Mai, Setembr-Otumbr ani Janer-Febrer mhoineant) pallant'lean diunchem. Oxem kel'lean rog fuddem posrunk pavonam. (Pallant'lean kiddnaxak diupachi pod'dot polle pan 66 ani *rongit fotto 10)*
2) Katrun kaddlolo bhag pois vhorun lascho, kiteak hea rogachi bursi kuslolea bhagant asta, ani thoinch sanddlear, hea kuslolea bhagant aslolea rogachi bursi dusrea nirogi maddank lagunk xokta.
3) Sifarus kel'lea sarea vangdda, dor vorsak, dor eka maddak 5 kilo neem pendd ghalchi.
4) Rog aslolea vattaramnim maddachea khandeak zokhmi zaunk diunchem nhoim, kiteak rogachi bursi he zokmintlean maddant bhitor vochunk xokta ani maddak rog lagunk xokta.

## “GANODERMA”:-

“Ganoderma”(Basal stem rot) ho rog *Ganoderma luciderm* ani *Ganoderma applanatum* hea bursi pasun zata.

**Lokxonam:-**

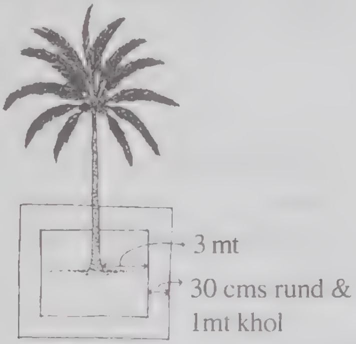
- Rog lagil’lea maddachim pallam kustat, sokoili chuddtam suktat ani lambtat. (*polle rongit fotto - 20*)
- Bonde zhoddtat.
- Ho rog kanddachea sokoilea bhagak lagta ani uprant souka-souka vhoir vochot rauta.
- Maddachea kandda-tlean (zomni lagim) tambsar-puddi rongacho dhink / ros vhanvunk lagta. Ho dhink / ros suklea uprant kallo zata.
- Novim chuddtam ietat tim barik urtat. (*polle rongit fotto - 21*)
- Madd kovlla lagim barik zata.
- Rog chodd promannan laglear, hea rogachea bursechim ollmbim maddachea mullacher distat. ani okherek thoddea vorsanim madd morta. (*polle fotto - 38*)

*Fotto - 38 — Ganoderma-chim ollmbim*

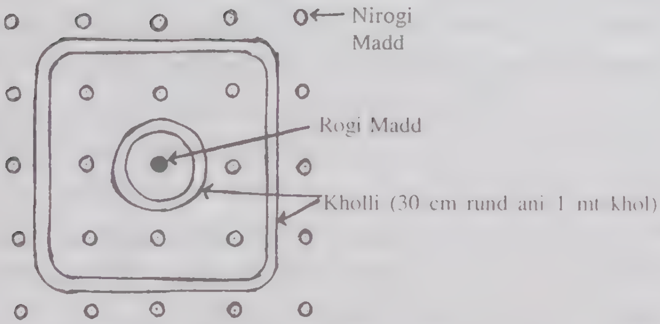
**Karbhar:-**

- “Aureofungin Sol”, 2 gram + 1 gram “Copper sulphate’ him kiddnaxakam 100ml udkant misoll korun pallant’lean vorsak 3 pautti (Julhai, Otumbr ani Janer mhoineant) diunchem, vo
- “Tridemorph 5 %” (Calixin) hem kiddnaxak, 5 ml, 100 ml udkant misoll korun maddak vorsak 3 pautti pallant'lean diunchem.
- “Tridemorph” (Calixin) hem kiddnaxak, 25 ml, 25 liter udkant misoll korun, mullant ghalchem.
- Sifarus kel’lea sarea vangdda dor ek maddak, dor vorsak 5 kil neem pendd ghalchi.

- Gimachea disamnim madd ximpche, oxem kel'lean zomnint aslolea bursi-chi sonkea denvta.
- Chodd promannan rog lagil`le madd ani rog lagun mel`le madd katorche ani lasche, kiteak hea rogachi bursi kuslolea bhagant asta, ani thoinch sanddlear, hea kuslolea bhagant aslolea rogachi bursi dusrea nirogi maddank lagunk xokta.
- Ho rog, eka madda thaun dusrea maddak , ximpnnechea udkantlean ani pallant'lean posorta, he khatir rog lagil`le madd eksure korche.
- Eksure korunk, maddache sorvbhonvtonnim (*Polle chitr 30)* mulla thaun sumar 3 mt pois, 1 foot (30 cm) rund ani 1 mt khol kholli/ chori khonchi. Rog lagun chodd mhoinne zaleat zalear, rog lagil'lea madda sorvbhonvtonnim aslole madd eksure korche *(polle chitr 31)*
- Maddam modem kellieo rouncheo.




*Chitr - 30*
*Madd eksure korche*




*Chitr - 31*
*Madd eksure korche*

## Madd Vhanvop ani "Ganoderma" rog-achea lokxonam-chi tulla

| Lokxonnam | Madd -vhanvop | 'Ganoderma' |
|---|---|---|
| 1. Vhanvop | Madd mullak, modekot va unch vhanvpak suru zata | Madd mullak vhanvpak suru zat. Kednai vhanvpachim lokxonnam bhailean disonant. |
| 2. Kusop | Chodd bhitor kusona. | Chodd bhitor kusta, modlo bhag sud'dam kusta |
| 3. Vhanvpachim lokxonnam dispachi unchai. | Unchlea bhagak (kovla lagim) sud'dam dista | Fokot 4-5 mt unch dista |
| 4. Pallam kusop | Rog lagun khub kall zalea uprant pallam kustat | Pallam khub promannan kustat. |
| 5. Bursi-chim ollmbim | Disonant | Rog lagun chodd kall zatokoch vo madd mortokoch, maddachea mullacher distat. |
| 6. Rog posrop | Eke ritin posorlolo disona | Lagunchea maddank rog lagta / posorta |
| 7. Moronn | Madd morpak khub vorsam lagtat | Rog laglea uprant madd 6 mhoineamnim tem 2 vorsam bhitor morta. |

**BONDDE ZHODDOP:-**

Maddache bondde khub karonnank lagun zhoddtat, je porim :

- Zomnint palash (potassium) komi aslear.
- Favo tem sarem ghalunk na zalear.
- Maddak udok komi mellta zalear.
- Zomnicho tapman ani ollsan okosmat bodol'li zalear. Pausache survatek ani paus somptoch zomnicho tapman/ollsan okosmat bodol'li zalear, Jun ani Otumbr mhoineant bondde zhoddil'le distat.
- Kiddio (*Mait, Coried bug, Scales*) laglear bondde zhoddtat.
- Madd-vhanvop ho rog laglear bondde zhoddtat.
- Bail (madhi) fulamchi sonkea chodd asli zalear. *(Polle chitr 33 ).*
- Madd poilech pavtti utpon diunk lagta tedna, poilea 2-3 vorsant bondde zhoddop sobhavik zaun asa.
- *"Phytophthora Palmivora"* hi burxi bonddeank lagli zalear bondde zhoddtat.
- Paragikaronn (*pollination*) sarkhem zaunk nam zalear.

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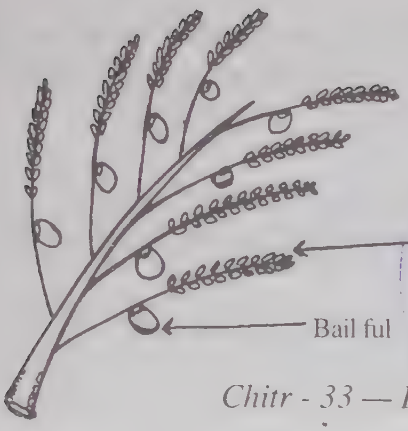



*Chitr - 33 — Dadlo ani bail ful*

**Karbhar:-**

1) Sifarus kel'lem sarem ani udok neamit diunchem.
2) Favo tem kiddnaxak, favo tea vellar vaprun, kidd ani rogacher niontronn dovorchem.
3) Burxi lagun bondde zhoddtat zalear 'Copper-Oxy-Chloride' hem kiddnaxak, 3 gram, ek liter udkant misoll korun vo "1% Bordo mixron"-acho penddicher favaro marcho.
4) Rog lagun bondde zhoddleat zalear te ekthaim korche ani lasche, kiteak hea rogachi bursi kuslolea bhagant asta, ani thoinch sanddlear, hea kuslolea bhagant aslolea rogachi bursi dusréa nirogi maddank lagunk xokta.
5) He soglle upchar upeogak poddonant zalear madd kaddcho ani novo kovato rouncho.

**PALLAM KUSOP:-**

Ho rog *"Phytoplasma"* vorvim zata ani *'Stephanitis Typicus'* hea bikanna vorvim ani *'Proutista Moesta'* hea tolla vorvim posorta. Kerala rajeant hea rogacho produrbhav chodd promannan disun ieta.

**Lokxonam:-**

- Rog lagil'lea maddacheo chuddteo holduveo zatat, osokt zatat, kustat ani bhagovtat.
- Toxench pallam kustat, bondde ani addsoram zhoddtat.
- Maddachem utpon komi zata.
- Nal'l akaran barik zatat ani kobreant telachem promann denvta.
- Ho rog lagil'le, maddank chuddteo kusop ho-i rog lagta.
- Rog lagil'le madd 2-3 vorsamnim mortat.

**Karbhar:-** Hea rogacher niontron haddunk ozun porian upchar sodun kaddunk nant. Rog bhagayatint ieuncho nhoi mhonn survatekuch upai gheunche.

Hea khatir.....

- Kovate kirlaun kaddunk rog-mukt bhagayatint'le nal'l vapurche.
- Kovate vikte gheunche aslear te khatrechea porsantlean *(nursery)* vikte gheunche.
- Vhoir sangleat tim lokxonam dislim zalear tabortop madd katorcho ani lascho, ani tea zagear fuddlim 2-3 vorsam novo kovato rouncho nhoi.

Rog lagil'le bhagayatint he sokol dil'le upai vapurche.

1) Sifarus kel'lea sarea vangdda 3 kg 'Magnesium sulphate' ani 50 kilo xendria (gaunti) sarem ani bhorpur pallo, dor vorsak, dor eka maddak ghalcho.
2) Ieog ti ontor pikam ani mixr pikam gheunchim.
3) Gimachea disamnim maddak udok diuchem, oxem kel'lean rogachem proman komi zata.

**BONDDE KUSOP:-**

Bondde kuspacho rog '*Phytophthora Palmivora*' he burxi pasun zata.

**Lokxonnam:**

Ho rog laglear......

- Mhadi fulam ani barik bondde zhoddtat.
- Zhoddlolea bonddeancher bhair ghaie poddtat ani te kustat.

**Karbhar:-**

"1 % Bordo mixron" vo "Copper-Oxy-Chloride" hem kiddnaxak (5 gram eka liter udkant misoll korun) favaro marcho. Pausallo suru zaunche poilim, ek favaro marcho ani pausallo somplea uprant 40 disanchi ontor dovrun don pautti favaro marcho.

Zhoddlole bondde punzaunche ani lasche.

# XIII

# Paddo, Upeog Ani Prokria

Maddak fulam ailea uprant (poi futtlea uprant) nal'l toiar zaunk 12 mhoine lagtat. Maddak dor eka mhoineant ek chuddit ieta ani dor eka chuddta fattlean ek poi ieta, mhonge dor eka vorsak, sarasari maddak 12 poi-eo ietat. Punn khubxe pautti, bhonvtonnchea vatavoronak lagun vo bhagayat durlokx kel'lea karanank lagun thoddeo poi-eo gorbpat (abort) zatat ani nal'lacheo pendeo ienant. He khatir khub pautti vorsak 12 pendeo mellonant.

Nal'l 11-12 mhoineanim zun zatat. Fokot purai zun zal'lech nal'l paddche. Vorsak 3-4 pautti paddo kortat. Bori kallji ghetlolea bhagayatint neman pendeo ietat ani thoim vorsak 6-12 pautti nal'l paddunk melltat.

Paddeli vo paddkar madd paddtat. Kai zageamnim nal'l sukun sokol podlea uprant ektthaim kortat, zalear kai desant lamb dandeak koiti bandun sokol raun pendi katortat ani sokol udoitat. Kai desant madd paddpak proxikxit makddank vapurtat. He makod maddacher vhoir vochun nal'l paddtat.

Halinchea vorsamnim paddeli komi zaleat, haka lagun maddar choddpachem iontr *(polle fottu 39)* lok vaprunk lagleat.

*Fotto - 39 — Maddar choddpachem iontr.*

**Nal'l santovop:**

Nal'l solche poilim santoun dovrunk zai. Nal'l santoun dovorlear........

- Khobreachi dhattsan vaddta.
- Nal'lant udokachem promann komi zata.
- Telachem promann vaddta.
- Kattlek bursi rog pois dovorpachi protikar xokti mellta.
- Nal'l solunk sompem zata.
- Khobreacho dorzo vaddta ani ek sarkho urta.

**Nal'lcho torekvar upeog ani prokria:**

Nal'lacheo torekvar vostu korun ani upeog vadoun viklear faido khub vaddta.

Dekhik: Nal'l, nal'luch koso vikche bodlek, tachem khobrel korun viklear, amkam son'n ani kott'tti mellta. Son'nacho ani kott'ttecho amcheani torekvar upeog korun vikum ieta. Pendd zonvarank khavodd mhonn vikum ieta. Oxe toren faido vaddoum ieta.

Torekvar vostu ani jin'nos korum ietat te hanga dakoileat.

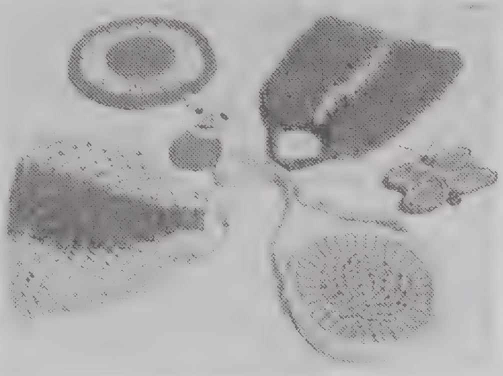
- Katli.
- Tel.
- Pendd.
- Kott'tteocheo torekvar sobhecheo vostu (handicrafts). *(Polle fotto 40 ani 41)*

*Fotto - 40 — Kott'teocheo torekvar sobhecheo vostu*

*Fotto - 41 — Kott'techim 'Ice-cream' kopam*

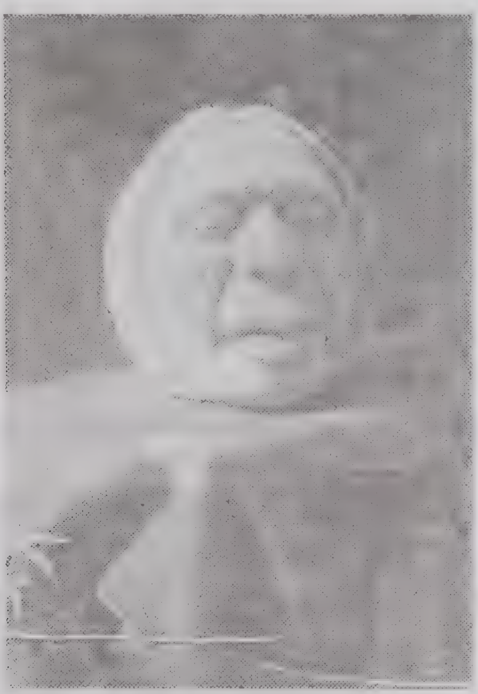
- Maddachea lakdacheo torekvar sobhecheo vostu. (*Polle fotto 42*)
- Katheacheo torekvar sobhecheo vostu. (*Polle fotto 43*)

*Fotto - 42— Maddachea lokdacheo torekvar sobhecheo vostu*



*Fotto - 43— Katheacheo torekvar sobhecheo vostu*

- Nal'lacheo sobhecheo vostu (*Polle fotto 44*)



*Fotto - 44 — Nal'l kantovon kel'li sobit vost*

- Maddachea lakdachem moder (furniture).
- Nal`lachi sai (cream).
- Nal`lachem dud (milk).
- Kott'ttecho pitto.
- Vinagr.
- Feni.
- Chuddteancheo sobhecheo vostu
- Kott'techo kolso
- Nal'lache ghodd 'chips'
- Nal'lacheo biskits
- Katheache vitte

**'Snow Ball Tender Nut':** 'Snow Ball Tender Nut' mhollear son'n ani kott'tti kaddlelem adsor (polle fotu). Addsor sol'lea uprant, ek iontr gheun bhitorli mov katli toxich dovrun, kott'tti purai kaddtat.Hea boll akarachea addsorant ek pipe (straw) ghalun udok pieupachem ani uprant katli khaupachi. 'Snow Ball Tender Nut' korunk 8 mhoineachem adsor vaportat. (*Polle fotto 45*).

*Fotto - 45 — 'Snow Ball Tender Nut"*

**Nata-de-Coco:** Ho ek jelly sarkho jin'nos, nal'lachea udkapasun kortat. (*Polle fotto 46*)

*Fotto - 46— Nata-de-Coco*

**Adsorachem udok:** Addsorachem udok ruchin pietat ani toxench bhitorli mov kattli khatat. 7 mhoineanchim addsoram pieunk ieog zaun asant ani tatunt choddan-chodd 'glucose' asta.Addsorachem udokant khub promanann 'vitamins'ani 'minerals'asta ani tech porim addsorachea udkak khub vokdache gunn asat. Addsorachem udok pielear jiv tondd urta. Addsorachem udok pisvent ani bhatleant 'pack' kortat. (*Polle fotto 47)*

Amchea jivitant nal'lacho ani maddacho khub-khub upeog zata.

*Fotto - 47 — 'Pack' kel'lem addsorachem udok*

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# UTRAVOLL

Akromonn - Attack

Akarxit - Attract

Anujiv - Microbes

Bhagayat - Horticulture

Burxi - Fungus

Choukon - Square

Chodd Malleachim - Multistorey

Chodd Khizkot - High Density

Daslakx - Million

Damat - Humidity

Don vorsuki piko - Biennial crops

Ekmev - Unique

Favaro - Spray

Jivxastrik - Biological

Jivik Niantronn - Bio-control

Jivonsot'vam - Vitamins

Kariaxamta - Efficiency

Kriaxilltai - Activity

Kandd - Trunk

Khanij - Minerals

Lokxonnam - Symptoms

Lagvodd - Cultivation

Mousomi piko - Seasonal Crops

Niontronn - Control

Nirogi - Disease free

Ontor Piko - Inter Crops

Porjivi Ganjil - Parasitic Wasp

Produrbhav - Infestation

Pudi - Brown

Protikar - Resistance

Pachvi Sarim - Green Manures

Paragikaronn - Pollination

Xendria Podart - Organic Matter

Pustik Jinnos - Nutrients

Rasrashit - Refresh

Rasainik - Chemicals

Sifarus - Recommended

Sthapni - Establishment

Sarasari - Average

Sankarit - Hybrid

Sodankall Jievpi piko - Perennial Crops

Tontr - Technology

Unnav - Deficiency

Utpadok - Producer

Utpadon - Production

Utpadonxamta - Productivity

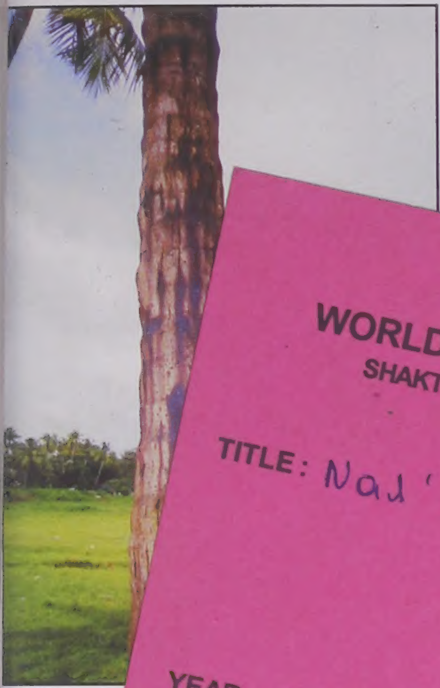
Utpon - Yield

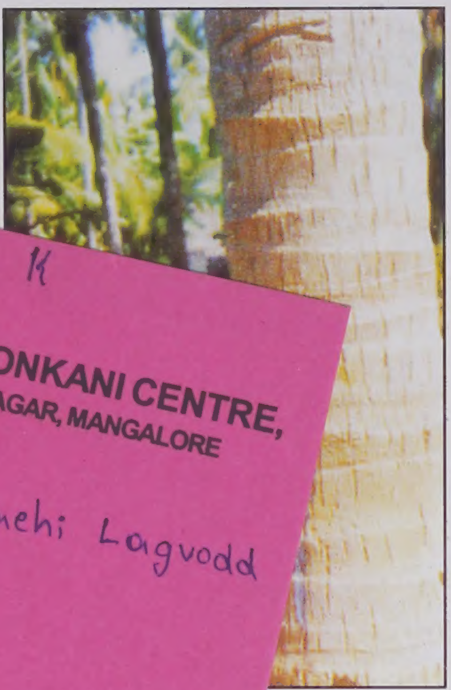
Vevosthapon - Management

Vorsuki piko - Annual Crops

Xetrfal - Area

Xendria - Organic





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## *Pustoka Vixim*

Tum nal'lachi lagvodd korunk sodtai?

Tum nal'lachem porsum sthapunk sodtai?

Tum tujea nal'lache bhagayatichem utpadon ani ienavoll vaddounk sodtai?

Tujea maddank kid-rog laglai ani tum tancher niontronn haddunk sodtai?

Tor hem pustok tujech khatir asam.

"Nal'lachi Lagvodd" hea pustokant nal'lache lagvoddi khatir goroz asloli soglli vevharik mahiti rosal utramnim ani sompe ritin dil'li asa. Dor ek tontrik mahiti vachpeank sompeponim somzunk 33 chitram ani 69 fotto vapurleat.

Nal'lache lagvoddi vangdda hea pustokant, Kell, Onos, Zaifoll, 'All Spice', Miriam ani Thiki hea pikamchea lagvoddichi khub mahiti dil'li asa.

Nal'l utpadokanchea margdorxona khatir "Nal'lachi Lagvodd" ek gorjechem ani khatrechem pustok zaun asa.

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## *Borovpea Vixim*

*Nevil Alphonso*

Kepem talukeant'lean Cotombi ganvant 1964 vorsa zolm zalo. SSC merenchem xikop Avedem-Kepemchea ' Immaculate Conception High School' hanga ghetlem. Magir baravi merenchem xikop Madgaumchea Chowgule Mhavidyaloiant purai korun, Parbhani-Maharastra-ntlea Marathwada Xetki Vidhyapit-achi Xetki vixoi-ant B.Sc. ( Agriculture) podvi ghetli.

1986 vorsa Gõy sorkarachea Xetki Sonchalnaloiant 'Sohaiak Xetki Odhikari' mhonn ruzu zalo ani Canacona, Madgaum, Kepem hangachea Vibhagya Xetki Karialai-anim survek seva keli. Te upant 'Xetki Odhikari' mhonn Xetki Sonchanaloi Ponnji ani 'Labh Xetria Vikas Pradhikoronn' (Command Area Devolopment Authority) Gogol-Madgaum hanga seva keli. Sodheak 'Gõy Tillari Xipnni Vikas Mhamondoll' Colvale-Bardez hanga 'Xetki Odhikari' mhonn kariarot asa.

Fattlim sumar 20 vorsam xetki vikas xetrakodden sambandit asum 'Agriculture Officers Association, Goa' ani 'Institute of Agriculture Technologists, Bangalore' he sonsthecho ajivon vangddi asa. Tosoch 'All India Federation of Agricultural Technologists'-acho upodheokx asa.

'Vauradeancho Ixtt' hea satolleant ani 'Gulab' hea mhoinealleant xetki vixoiacher zaitem likhan kelam. 'Agriculture Officers Association, Goa'-an prokashit kel'lea 'Home Gardening' (2004) ani 'Potential Horticultural Crops of Goa' (2005) hea don pustokanchem sompadan kelam. Nal'lachi lagvodd hea ixoi-ant khashelo ani prateakxik obheas asa.

Dr. Jayanti Naik